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Report and Discussion of a Case of Carcinoma of the Jejunum

J. C. WILSON, M.D., F.R.C.S. (C.), R. A. JOHNSTON, M.D., F.A.C.S.

THE rarity of carcinoma of the small bowel and particularly the proximal portion of the jejunum is well known to all pathologists. It has been said that a surgeon of wide experience may pass through his entire career without encountering a single case.[1] However, the impulse to publish this case arises not from its rarity alone but also because it brings into consideration certain clinical and laboratory findings regarding the diagnosis and treatment of these conditions. The post-operative course is also interesting to all who may have to deal with gastric surgery.

In reviewing the literature in regard to carcinoma of the intestines one finds striking evidence of the immunity of the duodenum, jejunum and ileum from the disease.

In a series of 41,883 autopsies performed at the Vienna General Hospital, 3,585 were cases of cancer; of these 343 were intestinal, 10 of which were in the ileum and none in the jejunum.[1] Hellstrom,[2] 1927, reports seventy cases he collected from the literature in addition to three of his own cases of carcinoma of the jejunum and ileum proved at operation. Since then five additional cases have been reported by different authors and quoted by Barnhart,[3] making in all 78 cases reported. Moynihan[4] writes "I have only been called upon to remove malignant growths from the ileum and jejunum on nine occasions. Tuberculous stricture following upon ulceration is occasionally seen and in some instances the thickening of the gut may be so marked as to cause strong resemblance to the neoplasm."

In regard to carcinoma of the duodenum the disease is also very rare but one might be unexpectedly confronted with the condition at operation without having previously considered the best method to adopt in its treatment. Dividing the duodenum into three portions, as suggested by Sherren, supra-ampullary, ampullary and infra-ampullary, the statistics regarding the distribution of 153 cases[5] show the region of the ampulla to be most often affected 104 cases, the supra-ampullary second with 30 cases and the infra-ampullary third with 19 cases. Information was obtained of an analysis of 130,990 autopsies[6] which showed only 36 cases of duodenal carcinoma. In spite of its rarity Jefferson[7] states, "Considering the shortness of the duodenum, it is

evident that, inch for inch, the duodenum is more liable to carcinoma than the rest of the small intestine." The treatment suggested, in addition to excision when feasible, consists of posterior gastro-enterostomy, cholecyst-duodenostomy and the implantation of Radon seeds.

Raymond Johnson,[1] of London, Eng., in writing of carcinoma of the small bowel describes four varieties of the primary growth:

(1) The stenosing form, producing a ring stricture of the gut.

(2) The polypoid type, in which the rounded mass of the growth projects into the lumen of the gut.

(3) That in which the growth is accompanied by extensive ulcerations.

(4) Colloid carcinoma.

Metastases to the regional glands, peritoneum and liver, are common, while in one case[9] of a very small primary growth which caused no obstruction but produced remote metastases, which proved fatal.

A consideration of carcinoma of the small intestine would be incomplete without a reference to the multiple tumours described by Bunting in the Johns Hop. Med. Bulletin 1904, which have the microscopic appearance of carcinoma. Similar tumours also occur in the appendix and a series is reported in the U. W. O. Med. Jour. by Luney,[8] which includes a personal case. These strange tumours are termed "carcinoids" and have the microscopic but not the clinical features of a carcinoma: this may appear unsatisfactory, but in considering any tumour it is necessary to consider not only its histology but also its other features.

The treatment of carcinoma of the small bowel usually becomes necessary because of intestinal obstruction; in cases where this is partical and the gut can be mobilised, enterectomy with the removal of the mesentery bearing infected glands followed by intestinal anastomosis is the approved treatment. However, if a marked degree of obstruction is present, as in the case reported, it is known that immediate resection is dangerous and difficult, especially when the growth is high up in the jejunum. In our case the only alternatives to immediate resection were an artificial anus near the duodeno-jejunal flexure or a posterior gastro-entererostomy as a preliminary short circuiting procedure to be followed by a second operation for removal of the involved bowel. The course followed was removal of the section of the intestine containing the tumour and closure of the duodenum with intestinal continuity re-established by anastomosing the jejunum to the posterior surface of the stomach. This would have been successful but for the unfortunate adhesion of the efferent loop of jejunum to the blind end of the duodenum (Fig. 1) causing the fatal post operative high intestinal obstruction, which we had treated[10] but not relieved.

Carcinoma of the small intestine appears in younger subjects than carcinoma in other locations in the gastro-intestinal tract and it occurs about twice as often in men as in women. The symptoms depend on the amount of obstruction produced; gastric symptoms may predominate in cases involving the jejunum, if the vomitus contains bile and duodenal

contents, especially if this appears as the first vomitus, one should think of carcinoma of the jejunum. Some authors mention the frequency of visible peristalsis, in our case, with such a short loop of jejunum proximal to the obstruction, this sign was not observed.

The symptoms previous to the onset of complete obstruction may be present for a year, a few weeks or may appear suddenly. They usually consist of abdominal pain, vomiting, increasing constipation and rapid emaciation, all of which were present to a marked degree in the case reported. Other symptoms, such as diarrhoea, may occur and these cases have been diagnosed as enteric fever.

The hypertrophy of the gut proximal to the obstruction also mentioned was marked in our case—the blood vessels of the stomach being of a remarkable size.

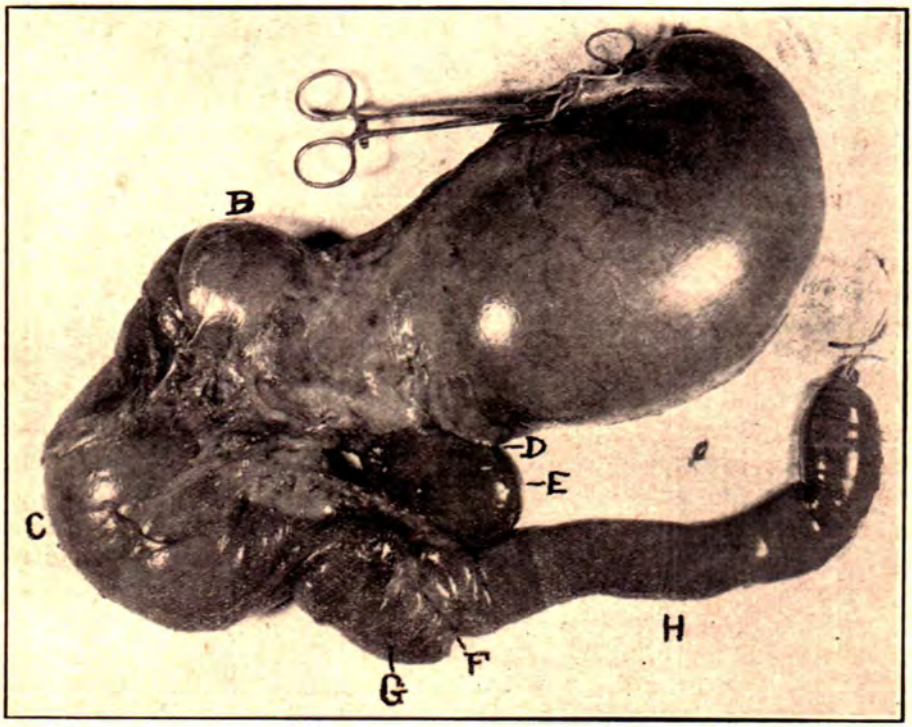

Fig. No. 1—Post-mortem specimen showing the distended stomach and duodenum. The artery clamp is six and a half inches long. A—Cardia, B—Pylorus, C—Distended duodenum, D—Site of the gastro-jejunostomy, E—Distended jejunum leading from the anastomosis, F—Jejunum kinked and adherent to the closed end of the duodenum marked, G, H—Jejunum.

CASE REPORT

Hospital No. 1519-34; H. A., Male aged 32; occupation—Motor Mechanic; admitted to Victoria Hospital Jan. 3, 1934; chief complaints on admission were:

1. Pain in adbomen.
2. Nausea and vomiting.
3. Constipation.

The present illness commenced November 25, 1933, when he experienced pain in the region of the lumbar spine. This caused him to lay off work one day. On December 8, 1933 he noticed pain in the left side, radiating to the region of the urinary bladder and associated with a feeling of nausea. January 2, 1934, he still complained of the indefinite pain in the abdomen, which became acute and was associated with a severe attack of vomiting.

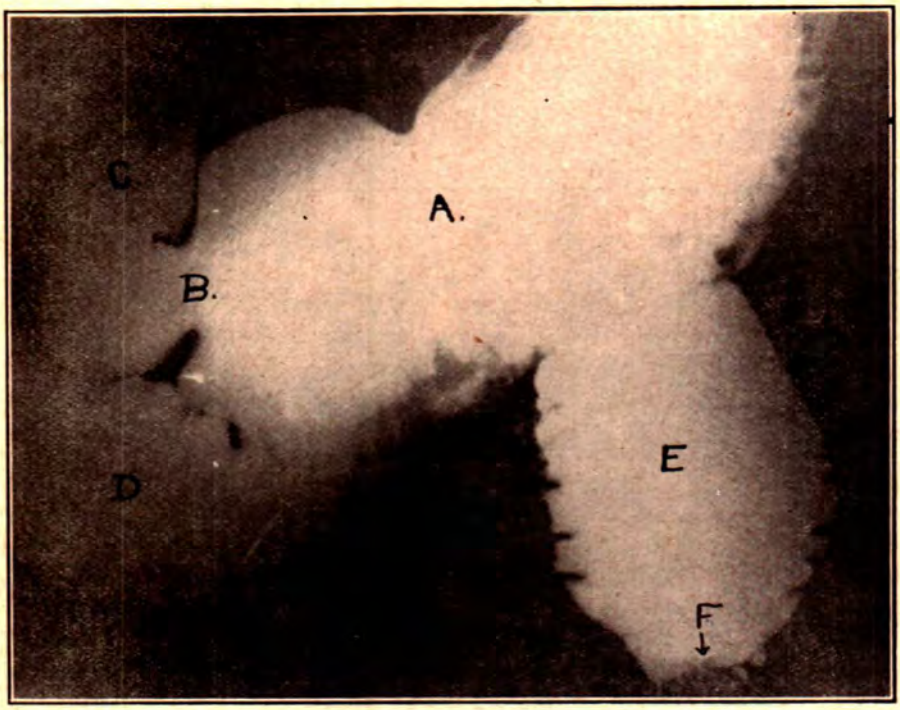

Fig. No. 2—Pre-operative skiagram showing the retention of the barium and the distension of the stomach, duodenum and first portion of the jejunum. A—Stomach, B—Pylorus, C—First portion of the duodenum, D—Third portion of the duodenum, E—First portion of the jejunum, F—The obstruction.

His physician, who was in attendance from the commencement of the malady, had been handicapped in his investigation of the case and during this attack had insisted on the patient being removed to the hospital. He has also complained of pain after eating; this pain was relieved in from one-half to one hour by vomiting. The pain was cramp-like in character and was not localized to any particular area. He had been severely constipated for the past year, and there has been a marked loss of weight in recent months.

PAST HISTORY

Patient has been subject to upper respiratory infections. There is a history of an acute urethritis five years ago. Tonsils and adenoids were removed six years ago.

FAMILY HISTORY

Negative regarding any familiar pathological tendencies.

PHYSICAL EXAMINATION

The patient is a fair complexioned young man, lying in the dorsal decubitus, very emaciated and in no apparent pain. The skin is pale and dry, the conjunctivae are injected, the pupils react normally, the tongue is dry and coated, the teeth are in fair condition, and the pharyngeal mucous membrane is reddened. The examination of the cervical and the thoracic regions is negative except that it reveals a marked state of wasting and irregularity of the thoracic cage. The heart and the lungs exhibit no gross changes on clinical examination. The abdomen, which is the feature of this case, also shows marked wasting, no marked distension is present and the respiratory movement is normal. There is a generalized tenderness present which is not localized to any definite area, no masses are palpable. The day following this a very different condition was found. The abdomen was distinctly distended in its upper portion above the umbilicus and on inspection gave the impression of a tumour, but it was tympanitic on percussion, thereby revealing itself as gas containing bowel. The examination of the rectum was negative except that impacted faeces are present.

Between January 3, 1934, and January 11, 1934, the patient was being investigated by both clinical and laboratory methods and during these days his condition became worse and it was necessary to commence intravenous administration of fluids to combat dehydration and incipient gastric tetany from peristent vomiting.

LABORATORY EXAMINATION

Blood count: HB, 105%—R.B.C., 5,540,000—C.I. 0.94—W.B.C. 11,400.

Differential: Neutrophiles, 58%; mature forms, 48.7%; young forms, 11%; lymphocytes, 30%; eosinophiles, 10%; monocytes, 2%.

Blood chemistry: N.P.N., 46.0 mgms. %; creatinine, 1.6 mgms. %; sugar, 103 mgms. %; chlorides, 395 mgms. %; alkali reserve, 74; Wasserman, negative.

URINE ANALYSIS

The urine was alkaline, specific gravity 1,020, did not contain albumin but contained a moderate amount of sugar. There were a few pus cells in the centrifuged sediment.

The diastatic index of the urine was 166.

GASTRIC ANALYSIS

Fractional gastric analysis, without histamine, showed hyperacidity —maximum total acidity 72 cc. n/10 per cent., maximum free HCL 59 cc. n/10 per cent. There was bile in every sample of stomach contents. There was evidence of food retention in the stomach. The volume of the fasting contents was 134.0 cc. and at the end of the two-hour fractional test, 30.0 cc. of contents were recovered.

FAECES

Tests for occult blood in the faeces were negative on two occasions.

INTERPRETATION OF THE LABORATORY FINDINGS

The moderate increase of the non-protein nitrogen of the blood, in the absence of evidence of renal insufficiency, pointed to intestinal obstruction. There was a definite hypochloraemia and an alkalosis, abnormalities which occur as the result of high intestinal obstruction. The glycosuria, in the presence of a normal blood sugar, was probably of no significance and could be related probably to intravenous glucose therapy, although the possibility of a pancreatic lesion should be considered. The diastase content of the urine could be explained on the basis of some pathological condition of the external secretory portion of the pancreas, either inflammatory or neoplastic, or due to excessive absorption of the starch-splitting ferment from the intestine. The results of the gastric analysis were indicative of functional disturbance of the stomach and pylorus. The presence of bile in all samples showed unusual regurgitation of duodenal contents into the stomach.

X-RAY REPORT

Examination of the gastro-intestinal tract with a barium meal shows the oesphagus to be normal. The stomach fills quite readily and the peristalsis is quite active. The duodenal cap is enlarged. The second and third parts of the duodenum show marked enlargement and at times the third part measures 4.5 cm. in diameter. The jejunum near the fundus of the stomach shows great dilation and measures 8 cm. across its greatest diameter. A short distance down, there is a definite constriction which would appear to be an obstruction through which small quantities of barium escape. The pathology associated with this obstruction cannot be definitely established. At five hours the same condition prevails. Only a small quantity of the barium has escaped and some has reached the caecum, but there is about 90% retention. It is to be noted that there are marked hypertrophied rugae in the stomach wall. At 24 hours there is about 65% retention in the stomach, while the head of the meal has reached the transverse colon.

The Diagnosis: Obstruction of the jejunum a short distance beyond the duodeno-jejunal junction. (Fig. 2.)

January 11, 1934, Operation. Para-median incision above the umbilicus; the stomach and duodenum were found to be markedly distended. The first loop of the jejunum was isolated and found to have an annular constriction present about 4 inches from the duodeno-jejunal junction. This constriction was causing total obstruction. The stenosed section of the bowel was resected. On account of the distention of the proximal portion the ends of the bowel were closed and the jejunal loop was anastomosed to the posterior surface of the stomach. The resected portion was sent to the laboratory for investigation.

SUMMARY OF SURGICAL PATHOLOGICAL REPORT

Grossly the segment of bowel at about the midpoint on its external

surface showed an annular band-like constriction. At this site an indurated mass was felt. On opening the bowel longitudinally a tumour mass, measuring 3.5 cm. in diameter and tending to encircle the gut, was found growing from the mucosa. It was a slightly projecting, low polypoid, friable growth. At its central point was a small ulcer and here the tumour appeared to be deeply infiltrating the wall, which felt rigid and indurated. In the constricted portion the calibre of the lumen is reduced to the size of a small pencil (.5 cm. in diameter) and even water passed through with some difficulty. The lumen of the bowel above the constriction is about twice the diameter of that below the constriction.

Microscopically the tumour growth consisted of dilated, irregular duct-like and acinar structures formed by a very tall columnar epithelium. While most of the tumour growth was found to be localized in the mucosa and submucosa, at one point it has penetrated the subserous coat deeply with the production of much new-formed fibrous tissue. The tumour, then, showed a distinct infiltrative and fibrotic tendency. (See Fig. 3 and 4.) No regional lymph gland involvement was demonstrated.

Diagnosis: Stenosing fibro-carcinoma of jejunum with marked stenosis.

Fig. 3—Lower power photomicrograph of tumour in jejunum. The arrow indicates the point of transition from normal mucosa to tumour growth. Above and to the right of the arrow a slightly projecting, low polypoid growth is seen. Groups of tumour acini are seen in the submucosa. Fixed in formalin. Stained with hematoxylin and eosin.

The immediate post-operative recovery was only fair and he continued to vomit considerable quantities of bile stained fluid, 40 ounces at a time. Gastric lavage was used along with continuous intravenous

administration of 5% glucose and saline. A Rehfuss tube was inserted and aspirations of stomach and duodenum carried out every hour. This procedure was followed by marked clinical improvement, 10 to 20 ounces of foul fluid being returned at each aspiration.

January 26, 1934. Taking fluids and soft food by mouth; no vomiting for 24 hours. Bowels have moved with aid of enema; sleeps fairly well at night.

Fig 4—High power photomicrograph of tumour showing disorderly, atypical arrangement of the epithelium with hyperchromatic nuclei. Many lymphocytes are infiltrating the stroma.

January 29, 1934. Vomiting occurs but at less frequent intervals; has discontinued taking food by mouth and intravenous therapy recommenced. The general condition became rather hopeless with incontinence, dehydration, delirium and vomiting of foul-smelling fluid.

February 3, 1934. After a 500 cc. transfusion a jejunostomy was performed with Witzel's technique under local anaesthesia; fluids, nourishment and some of the bile-stained, aspirated duodenal fluid was given through the jejunostomy, but despite continued aspirations of the gastric and duodenal contents and a second transfusion, the patient retrogressed and died February 9, 1934.

SUMMARY OF AUTOPSY FINDINGS

Autopsy was performed on February 9th, 1934, approximately two hours after death. Permission was granted for examination of the abdomen only. The body was extremely emaciated. A recent mid-line abdominal wound was present in which a rubber drainage tube was inserted. This rubber drainage tube was fastened into the jejunostomy opening. On opening the abdomen some localized fibrinous peritonitis

was found in the region of the jejunostomy and on the surface of the adjacent portion of the liver, but no evidence of generalized peritonitis was noted. The stomach, duodenum and first portion of the jejunum were tremendously dilated. They contained about 2,250 cc's of bile-stained foul-smelling cloudy fluid. The duodenum ended in a blind pouch which was tightly sutured and invaginated. The first portion of the jejunum commenced at a blind pouch which had been sutured and invaginated. (The portion of intestine intervening between the end of the duodenum and the first portion of the jejunum containing the tumour had been resected at operation on January 11th, 1934.) About 6 inches from its blind end, the jejunum was attached to the stomach in a posterior gastroenterostomy. The loop of the jejunum, which had been anastomosed to the stomach, was adherent to the closed end of the duodenum by fibrous adhesions, thus producing a kinking and obstruction. (See Fig. 1.) When these adhesions were separated the fluid contents in the obstructed loop of the jejunum readily passed along. The gastroenterostomy opening was patent and adequate. No lesions were found in the remaining portion of the intestinal tract. Careful investigation failed to reveal any extension of the tumour.

Other findings confirmed by microscopic examination were cloudy swelling of the kidneys and liver and fatty degeneration of the liver.

SUMMARY

1. Report and discussion of a case of stenosing adeno carcinoma in the first four inches of the jejunum.

2. The evaluation of symptoms and laboratory findings is considered.

3. The infrequency of the disease and the difficulty of diagnosis are pointed out.

4. The surgical treatment is considered and the post-operative course outlined.

5. Post-operatively the case reported was complicated by high intestinal obstruction from peritoneal adhesions.

6. The pathological and autopsy findings are included.

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It is a pleasure to thank the members of the various departments of Victoria Hospital for their kindness in aiding in the care of this case, Dr. Watson for the comments on his laboratory findings, Dr. McNeil for his X-ray work, Dr. Fisher for the pathological reports, Dr. V. A. Callaghan for surgical assistance, Mr. M. F. Maguire for photographic work and the staff of the Medical School Library for their ready assistance, and last, but not least, to Dr. W. S. Johnston for referring this case and for his splendid co-operation.

Spinelli Operation Followed With Pregnancy and Labor

W. PELTON TEW,
M.B. (Tor.), F.R.C.S. (Ed.), F.R.C.S. (Can.), M.C.O.G.
Associate Professor Obstetrics and Gynaecology, Faculty of Medicine, University of Western Ontario.

NORMAN F. MILLER[1] in 1927 reported fifty-five cases from the literature and one case of his own of Inversion of the Uterus followed with pregnancy. In this group of cases reported by Miller, the youngest recorded was a patient eighteen years of age. The original inversion existed six weeks before it was repaired by Piccolis incision. Two subsequent pregnancies occurred, both terminating normally. The oldest patient in Miller's group was thirty-seven years old. There were sixteen primiparae and twenty-one multiparae. The parity of the rest of the group was not stated. Fifteen of the group were corrected immediately. The average duration for the whole group was thirty-three days. The longest interval was twelve months. Four of the group underwent spontaneous replacement after several attempts at manual replacement. Twenty-two of the group were corrected by operation. The average duration of the inversion for these cases was nine months. The longest duration of any one case was five years.

The fifty-five cases reported by Miller were corrected as follows. Twenty-five were replaced manually. Eight cases underwent spontaneous replacement. There were twenty-two cases corrected by operation. Eight of the operative corrections were Piccoli's; two by the combined Piccoli-Borelius-Westermann operation; three by the Kustner operation; five by the Spinelli operation; one by the Kustner-Borelius-Westermann operation; one by Kehrer's method and one by the Duret's method.

There were no recurrences of the inversion in subsequent pregnancies among the twenty-two cases corrected by operation. There were eleven recurrences of inversion in the twenty-five cases corrected manually. There were only three cases of subsequent abortions among the cases reported. Adherent placenta occurred in the subsequent pregnancies in forty per cent of the cases corrected manually and in eighteen per cent of the cases corrected by operation. Twenty-nine confinements were reported following the twenty-two cases corrected by operation. Uterine rupture did not occur in any case.

From this report it would appear that conservative management of pregnancy and labor is the method of choice for cases of pregnancy following corrected uterine inversions. This holds true for cases

manually corrected and for cases corrected by operation, providing the post-operative convalescence is afebrile. The possibility of rupture of the uterus should be kept in mind but seemingly the chances of it occurring are not very great.

Miller reported twenty-two cases of pregnancy and labor following operative correction of uterine inversion. Of this group five cases were corrected by means of the Spinelli operation. The following case was corrected by means of the Spinelli operation.

Mrs. C. B., age twenty-nine, presented herself at the out-patient Gynaecological Clinic, Victoria Hospital, February 25, 1931. Her past history was as follows: The patient was confined with her first baby in Ottawa. The record of this confinement was not looked up. Her second confinement was October 15, 1927, in Victoria Hospital, London. This labor lasted five and a half hours. The delivery was spontaneous and the baby weighed seven pounds ten ounces. The mother and baby both left the hospital under normal circumstances on the tenth day following labor. She was then a semi-private patient. Her third confinement was March 3, 1929. This labor lasted four hours and the delivery was spontaneous. The following is a quotation of the house surgeon's notes concerning the delivery of the placenta: "On expression of the placenta by Crede's method it was found very adherent. On traction a mass was brought forward the size of an adult fist. Membranes were separated and the placenta delivered. A hand was inserted into the uterus and the submucous pedunculated fibroid growing from the posterior wall of the fundus was found."

Some of the nurse's notes on the history were as follows: "Placenta expelled with difficulty. Ergot one ampoule and pituitrin one ampoule given. Considerable haemorrhage, pulse weak at times. Condition fair as patient was moved from the labor room to her own. Two hours after delivery the perineal pads were quite saturated. No complaints of pain. Five hours after delivery pulse rather weak, condition fair. The following morning there was no severe flowing." From then on the flowing gradually decreased. The mother nursed her baby. The patient was discharged from the hospital on the twelfth day with a normal temperature and a pulse rate of ninety. Her average temperature was about one hundred and average pulse rate about one hundred during the eleven days following confinement.

The patient stated that while on her feet after leaving the hospital a mass protruded from the vagina. This gradually decreased in size and receded. It finally would only appear during her menstrual periods. A diagnosis of a completely inverted uterus was made and the patient was admitted to the Indoor Service. Patient was menstruating the day of admittance to the hospital. The inverted uterus was protruding through the vulvar orifice, and we had the opportunity of observing the interior of the uterus weeping droplets of blood during a menstrual period. There was a moderate amount of flowing February 26th, 27th

and 28th. On March 1st there was very little flowing and on March 3rd the period was over. There was a pinkish discharge for the next two or three days and the uterus gradually receded into the vagina. The patient stated that the uterus, or mass, had been protruding in this manner with each of her menstrual periods during the past two years. On March 12th I carried out the Spinelli operation. The patient made an uneventful recovery with an afebrile convalescence. On March 30th the patient was up for the first time and was discharged from the hospital April 3rd with the pelvis very satisfactory.

On leaving the hospital the patient was requested to return to the Out-Door Gynaecological Clinic periodically for examination. She was also advised to avoid a pregnancy for about one year. The follow up examinations of the pelvis proved it to be comparatively normal and her menstrual periods were perfectly normal.

On November 30th, 1933, the patient presented herself at my office stating that her last normal period was April 28th, 1933. On examination I found the patient to be about seven months pregnant. I arranged for her to attend the pre-natal clinic. She was confined December 30th, 1933. The duration of the labor was four hours and the delivery was spontaneous. The baby weighed five pounds two and three-quarter ounces. This was no doubt due to the fact that labor commenced about three weeks prematurely. The baby was vigorous and did well from the start. The after-birth came away rather reluctantly at the end of an hour by the use of the Crede method. The puerperal period was normal and on discharge from the hospital on the fourteenth day after delivery the uterus was well involuted and the pelvis seemed normal.

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Time spent in an honest attempt is never wasted.—C. K. S.

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Squamous-Cell Carcinoma of the Kidney Pelvis*

C. W. J. Morris, M.D.

SQUAMOUS-CELL carcinoma of the kidney pelvis is rare. Active pulmonary tuberculosis occurring in the seventh decade or later is not common, although it does occur more frequently than is generally believed. Pulmonary sporotrichosis is very rare. The unusual association of all three of these conditions in the same patient seems to justify the publication of the following case.

Case Report

Present Illness: Mr. J. B., (Hos. No. 33-5763) a married, white male, 70 years of age, was admitted to Victoria Hospital on August 29, 1933, complaining of rather constant pain in the abdomen, cough, dyspnoea, and extreme loss of weight. (75 lbs. within the last six months.) He had been generally well until seven years ago. At that time he became dyspnoeic on exertion and developed a troublesome, productive cough with which there was associated a moderate, gradual loss of weight. The patient had previously suffered from active pulmonary tuberculosis and these symptoms were believed to be due to an exacerbation of the former lesions. The symptoms progressed and about six years ago his chest was radiographed and a diagnosis of thoracic aneurysm was made. During the past six years even moderate exertion brought on dyspnoea followed by coughing; the dyspnoea becoming so severe that he was forced to sit up in bed to obtain relief and rest. Morphia was used, as required, to relieve the cough and dyspnoea. Six weeks before admission he began to complain of constant, dull, aching pain, extending across the mid-abdomen, more severe on the left side and radiating through to the back in the region of the twelfth rib.

Past History: Patient had typhoid fever at the age of 30; gastric symptoms with temporary loss of weight at 44; and sustained, through a fall, an injury to the left iliac crest, when 53 years of age. He denied venereal disease but has had anti-syphilitic treatment presumably following the X-ray diagnosis of aneurysm.

Family History: One child died of pulmonary tuberculosis; otherwise irrelevant.

Physical Examination revealed an emaciated male sitting up in bed in obvious respiratory distress. The supraclavicular and infraclavicular spaces were markedly sunken. There was noticeable indrawing of the intercostal spaces on inspiration, particularly at the bases posteriorly. Resonance was impaired on both sides of the sternum in

*From the Department of Pathology and Bacteriology, University of Western Ontario Medical School.

the first three interspaces. Broncho-vesicular breathing with a few fine râles was heard. The heart was not enlarged. There was a suggestion of an apical systolic murmur. The blood pressure was 107/70. No palpable masses were noted in the abdomen although there was tenderness over the left flank on deep palpation. A band of hyperaesthesia extended around the trunk from the ninth thoracic to about the third lumbar vertebra on the left side and from the eleventh thoracic to the second lumbar vertebra on the right side. This area could not be definitely determined as the responses seemed to vary. The reflexes were normal.

Clinical Notes: Following the withdrawal of morphia the patient was temporarily free from asthmatic attacks one week after admission. He still complained of recurrent attacks of pain in the chest. No clinical evidence could be found to support a diagnosis of aneurysm and fluoroscopic examination revealed none. The Wassermann reaction was negative in the blood and spinal fluid. Radiographic examination of the chest revealed definite indications of old tuberculous lesions in both lungs. The lower spine showed marked evidence of chronic hypertrophic osteoarthritis with lipping of the bodies, more particularly of the third and fourth lumbar vertebrae.

The patient continued to complain of dull persistent pain which radiated from the lower thoracic and lumbar regions of the back, anteriorly across the lower part of the abdomen. This pain seemed worse at night and he usually tried to obtain relief by sitting up and bending forward. Morphia was required to give relief. Radiographic examination of the K. U. B. areas revealed nothing unusual except a large circular calculus in the urinary bladder. A pyelogram was not done. The abdominal pain, which the patient described as "an old-fashioned stomach ache," recurred frequently. X-ray studies of the gastro-intestinal tract revealed a 50% gastric retention at the end of five hours.

His appetite continued to be poor and he frequently took nothing but fluids for days at a time. Occasionally intravenous fluids were necessary. The temperature remained normal or subnormal throughout the illness except on two successive days when it reached 100°F. He slowly but progressively failed in health and died on January 6, 1934, nineteen weeks after admission.

Laboratory Findings: The non-protein nitrogen was 37.9 mgms. and 38.7 mgms. per 100 c.c. of blood on August 30 and December 8, respectively. The urine showed from a trace to three plus albumen on each of the twenty-three occasions that it was examined. Pus and red blood cells were frequently present and several times there were a few hyaline casts. On two examinations the blood showed nothing noteworthy except a haemoglobin of over 90 per cent. and a slight increase in the eosinophiles to 6 per cent.

Postmortem Examination: An autopsy was performed about two

hours after death. External examination revealed a markedly emaciated, elderly, white male, 70 inches in length. Nothing else of importance was noted except three decubitus ulcers, one on each thigh just posterior to the great trochanter and a third over the sacrum.

Significant changes were found in both lungs, left kidney, left adrenal, liver, pancreas and retroperitoneal tissue in the region of the left kidney.

Both pleural sacs showed extensive pleural thickening and fibrous adhesions. The right lung was mostly air-containing but patchy areas suggesting pneumonia were scattered through the lower lobe. At the upper part of the lower lobe, in its medial aspect, there was an area containing lumpy, greyish-yellow nodules which on section appeared caseous. They resembled caseous tubercles. Little evidence of necrosis of lung tissue was noted and no cavitation was found in the right lung. The left lung showed a more marked pathological process. Rather extensive caseation, necrosis and excavation of lung tissue was present in both lobes. The bronchi, especially in the central part of the lung, were thickened, dilated and prominent. The peribronchial lymph glands in both lungs were enlarged and contained yellowish, caseous areas.

The left kidney was bound up in a mass of dense, whitish, indurated tissue and was therefore not weighed. On freeing and sectioning it the kidney was of about usual size. Solid, whitish tumour growth was found, growing in a somewhat fan-shaped manner from the pelvis towards the cortex, replacing most of the parenchyma except for a rather narrow rim at the lower pole. Most of the pelvis was obliterated and filled with solid tumour growth. In the remaining areas soft, necrotic tumour was attached to the pelvic lining. The ureter was open. The right kidney was not involved with tumour.

The left adrenal was barely recognizable, being rather firmly bound to the left kidney and almost entirely replaced by solid, whitish tumour growth, with brownish-yellow areas scattered through it. The right adrenal appeared normal.

The liver weighed 1300 grams. It was quite diffusely studded with solid tumour nodules, many with yellowish, opaque spots and flecks and depressed centres. They varied in size from a pea to 3 cm. in diameter.

The head of the pancreas contained a mass of tumour which replaced a considerable portion of pancreas, with resulting parenchymatous atrophy and fibrosis.

The retroperitoneal lymph glands and tissue, especially in the region of the left kidney, left adrenal and pancreas, were dense, indurated and infiltrated with tumour growth.

Other findings were a dark colored, hard vesical calculus about the size of a walnut and chronic passive congestion of the liver and spleen. The spinal cord appeared normal.

Microscopic Examination: The sections of the lungs revealed an extensive caseating tuberculosis and areas of tuberculous pneumonia as

well as an acute lobular pneumonia and pulmonary oedema. Microscopic tumour metastases were also found in the lungs. The microscopic finding, which was entirely unsuspected and came as a great surprise, was the discovery of a fungus growth in the lung tissue. This consisted of masses of coarse, branching filaments arranged in a somewhat radiating, fan-shaped fashion. The filaments contained clearer vacuole-like spaces and areas of uneven staining. Numerous spherical bodies, with a rather refractile outer membrane, were observed scattered through the masses of fungus and lying in spaces apart from the filaments. These bodies were interpreted as spores, and the fungus considered to be a sporothrix. The lung tissue invaded by the sporothrix showed much necrosis similar to the type seen in tuberculosis. There appeared to be no evidence of fibrosis surrounding these necrotic areas.

In the left kidney tumour growth was found largely replacing the kidney parenchyma. In the larger areas of tumour the cells were flat, polyhedral and squamous-like, growing in solid sheet-like masses. Here, however, no epithelial pearl formation or keratinization was noted. There were many areas in which the tumour cells still retained their elongated transitional characteristics. The larger tumour nodules showed necrosis in their central part. In many instances the veins in the kidney were invaded by masses of tumour cells. Polymorphs in some of the collecting tubules, and accumulations of polymorphs in the interstitial tissue surrounding the tubules were taken to indicate an ascending infection from the pelvis.

The left adrenal was almost completely replaced by tumour growth. Here many of the tumour cells presented very definite squamous characteristics with some keratinization and poorly-formed epithelial pearls. Numerous mitotic figures were observed in the tumour cells and large areas of necrosis formed a prominent part of the sections.

The retroperitoneal tissue in the region of the left kidney was extensively infiltrated with tumour cells and presented much fibrosis. Lymph glands in this tissue were likewise invaded by tumour. The most interesting finding, however, was the presence of tumour cells within nerve sheaths and actually invading nerve fibres.

Quite similar changes were noted in the tumour metastasis in the head of the pancreas. Here also direct involvement of nerves by tumour growth was found.

The liver, in addition to numerous tumour nodules with central necrosis, presented the microscopic picture of a moderate, chronic passive congestion.

DISCUSSION

This case is considered to be quite unique in that carcinoma of the kidney, pulmonary tuberculosis and pulmonary sporotrichosis occurred coincidently. The variety of clinical symptoms and their peculiarities presented some problems in clinical diagnosis.

Pulmonary Sporotrichosis: The finding of the sporothrix fungus

in the sections of the lungs at autopsy was a complete surprise. Very few cases of pulmonary sporotrichosis have been reported. The most common manifestation of the disease is a cutaneous infection. The first case to be reported in America, a cutaneous type, was recorded by Schenck[1] in 1898. As pointed out by Foerster[2], the majority of cases are associated with the gardening industry; the barberry shrub being the chief source of infection. The source of the infection in this case, however, could not be traced.

It is interesting to note that the sporotrichosis was found associated, in the lung, with tuberculosis. According to Beurmann[3] this is likely to be the case. Apparently the sporothrix, a micro-organism of feeble resistance and relatively low pathogenicity, requires a condition of lowered resistance in the body, such as is brought about by a pre-existing disease. As it is difficult to differentiate the necrosis produced by a sporothrix infection from that of tuberculosis[3], it is probable that a good deal of the coagulation necrosis found in the lungs was due to the presence of the sporothrix and was not solely a feature of the tuberculous infection.

Since sporotrichosis was entirely unsuspected in the case reported, until the microscopic sections were examined, no cultural studies, pathogenicity experiments or other laboratory investigations of the fungus, were carried out. The morphology and cultural characteristics of the organisms are well described by Taylor[4].

Active pulmonary tuberculosis in the aged occurs more frequently than is generally believed. At times it runs a mild benign course and may be mistaken for bronchitis or asthma, as indicated by Fishberg[5], who also draws attention to the fact that such cases may be an active source of dissemination of the disease. It seems probable that this man infected his child who died of pulmonary tuberculosis.

In this case the clinical and radiographic findings established the diagnosis of pulmonary tuberculosis which was confirmed at autopsy. The tubercle bacillus was not found in the sputum. The patient, however, presented only a mild, non-productive cough, no fever, no haemoptysis and no night sweats. These signs and symptoms are often absent in the aged phthisical patient. The temperature should be taken per rectum in these cases. The organism of the aged does not react with fever as does the body of the young subject. The low blood pressure, which is often found, was present in this case. Rapid loss of weight, with the onset of active symptoms, is a characteristic feature and was well shown by the present case. The pulmonary disease, however, was complicated by the co-incident presence of renal carcinoma which, no doubt, increased the loss of weight.

Squamous-cell carcinoma of the renal pelvis. Of the tumours arising in the kidney pelvis squamous-cell carcinoma is very rare, being much less common than the papillary type of epithelioma[6]. Scholl and Foulds[7] reported five cases of the squamous-cell type observed at the Mayo

Clinic in the fifteen years interval between 1907 and 1922. As pointed out by them, these tumours are comparatively symptomless. They may produce a slow developing, almost painless obstruction. The case here reported presented very few symptoms pointing to kidney involvement. It corresponds to the first of the two types of squamous-cell tumours of the renal pelvis described by Scholl and Foulds; a type in which the renal parenchyma is invaded early, the kidney is solid and compact and the parenchymal tissue becomes completely replaced by carcinoma and irregular masses of fibrosis. Sharply contrasted with the papillary tumours the squamous-cell carcinoma rarely bleed. The latter type is twice as common in men as in women. It is usually unilateral and metastases occur early and extensively. In these respects the case here presented is in complete agreement.

The metaplasia in the epithelium of the renal pelvis occurs from long continued irritation, usually is the result of protracted chronic infection or calculi, or both. This patient had a large calculus in his urinary bladder. This is to be regarded as evidence of infection and residual urine, affording an opportunity for ascending urinary tract infection involving the kidney pelvis. This seems to be an important aetiological factor in the development of the carcinoma in this case.

The rather peculiar type of abdominal pain and associated constant hyperaesthesia formed a prominent part of the patient's symptoms. At one time it was thought that these symptoms might be due to a carcinoma of the pancreas. Later, at autopsy, it was shown that metastases were present in the pancreas and, there were involving nerves. The possibility of a spinal cord tumour was also considered but no evidence of this was found at autopsy. It seems very probable that the rather widespread involvement of the retroperitoneal lymph glands, the left adrenal and adjacent retroperitoneal tissue with tumour growth, resulting in pressure on sympathetic nerves and ganglia, together with a growth of tumour cells in nerve sheaths and fibres, as shown by the miscroscopic sections, was the basis of this patient's pain and hyperaethesia. This explanation closely corresponds to that given in a similar case described in the Cabot Case Record[8].

SUMMARY

A case is reported, with autopsy findings, in which pulmonary tuberculosis, pulmonary sporotrichosis and squamous-cell carcinoma of the renal pelvis occured coincidentally in a man aged 70.

Pulmonary sporotrichosis is very rare. It was entirely unsuspected in this case and only discovered after examination of the miscroscopic sections of the lungs. It produces pathological changes in the lungs similar, in certain respects, to those of tuberculosis.

Pulmonary tuberculosis in the aged occurs more frequently than is generally belived. It often presents a misleading clinical picture.

Squamous-cell carcinoma of the kidney pelvis is quite rare. The

frequent absence of symptoms directly referable to the kidney was shown in this case. It is due in most cases to long continued irritation such as is associated with infection or calculus. The case reported presented a peculiar type of pain with an unusual distribution.

I wish to thank Dr. J. H. Fisher for his stimulating interest, his constructive criticism and his help in the revision of the manuscript.

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Aneurysm of the Thoracic Aorta With Involvement of the Innominate Artery

DONALD J. TWISS, '36.

MR. E., aged 56, a farmer, was seen in May, 1926, complaining of dizzy spells, dyspnoea on exertion and tiring easily. His family history showed no cardio-vascular renal diseases. He gave a history of syphilitic infection in 1902, with treatment since that time, although he still has a 4+ Wassermann. He was "blown up" during the war, sustaining shrapnel wounds in the chest and right arm which, however, healed without complication.

He was admitted to Westminster Hospital, London, in January, 1927, complaining of the above symptoms together with an occasional severe pain behind the sternum. His condition gradually became worse until, in July, 1929, he was forced to stop every kind of work. For the past eight months he has been confined to bed.

The patient still has dizzy spells, weakness, dyspnoea, but his main complaint is a continuous, dull, aching pain behind the sternum. At intervals he is seized with a severe pain starting behind the xiphoid process and passing up on the right toward the base of the neck, to the shoulder joint and down the right arm for a short distance. It is stabbing in nature and lasts from a few seconds to five minutes. A choking sensation is present during the attack, following which the patient breaks out into a cold sweat. After an attack he is weak and fatigued. Relief is quickly obtained if he lies down and remains quiet.

PHYSICAL FINDINGS

The patient is a well developed, well nourished, individual with a dull expression and looks older than 56. The heart elicits no murmurs at the apex, but the sounds are weak in character. The second pulmonic

sound is louder than the second aortic. The apex beat is not palpable. The pulse in the right radial artery is not felt but in the left radial artery, 74 regular beats per minute are noted. Pulsation is visible in both right and left carotid arteries.

The blood pressure in the left arm is $^{135}/_{88}$ mm. Hg. and in the right arm a systolic of 88 mm. Hg., while the diastolic pressure is not obtainable. Clubbing of the fingers is noted on the right hand while the left hand shows no change. Right arm is colder to touch than the left. There is no tracheal tug. No tumours or thrills are palpable.

LABORATORY FINDINGS

Wassermann test 4+.

Blood count shows patient to be slightly anaemic.

Urinalysis—negative.

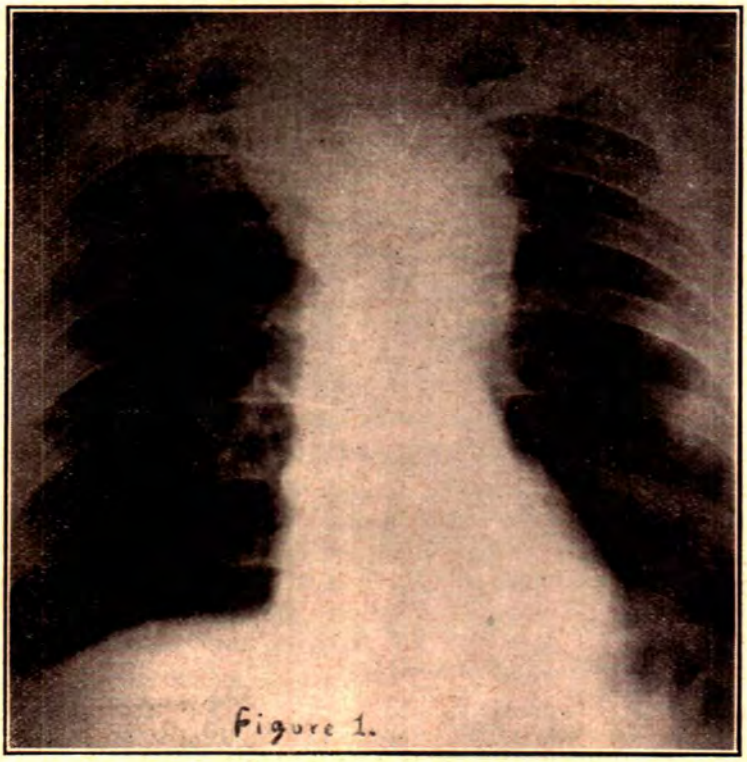
X-RAY EXAMINATION

X-ray picture taken at a distance of six feet shows the heart to be enlarged to the left side. There is a definite widening of the arch of the aorta with involvement of the innominate artery.

Transverse diameter of heart is 13.5 cm. Normal is 13.1 cm.

Transverse diameter of aorta is 8.25 cm. Normal is 5.6 cm.

There is distinct evidence of calcification of the arch of the aorta. (See figure 1.)



Heart is enlarged to left. Definite widening of the arch with involvement of the innominate artery is seen.

DISCUSSION

Aneurysm of the thoracic aorta with involvement of the innominate artery is a subject of importance and interest. Over five thousand cases of aneurysm of the thoracic aorta are reported in the literature[1].

Thoracic aneurysm is, in itself, not rare but when the innominate artery is affected the condition is very uncommon. Aneurysm of aorta is 5.6 times as common in males as in females[1]. It is seen at any time from infancy to old age. The coloured race is more susceptible than any other.

Beyond any other cause, syphilis stands out as the important aetiological factor in aortic aneurysm, estimates varying from 25% to 92%. Prolonged hypertension plays a part in arterial degeneration which results in aneurysm if violent exercise is indulged in.

Pain should not be considered as diagnostic, however it should make one suspicious. It may radiate to the left shoulder, right shoulder or back. In the absence of pulsation over the aneurysm, the condition may be diagnosed as angina pectoris, or if it radiates to the back, rheumatism. Pain may be considered as of three types: (a) anginoid usually associated with aneurysm of sinuses of Valsalva. This type of pain may come from three different sources: (1) involvement of nerve plexus in wall of the aorta, (2) stretching of the aorta, (3) pressure upon coronary arteries. (b) Pressure pain coming late in history of the aneurysm when growth reaches the chest wall, or when pressure is produced upon any thoracic organ. (c) This pain is difficult to class and is usually found in dissecting aneurysms. It is a sudden terrific pain from which the patient usually collapses. It radiates to the chest, abdomen and shoulders. Usually in this type death is immediate.

Dyspnoea is common, being found in 31% of cases. In mild cases it may be disregarded by the patient, but should never be overlooked. The cause of the dyspnoea is not known exactly.

Cough may be present, varying in degree and type, and sputum may be expectorated if the aneurysm presses upon the bronchus, but otherwise is of little account.

Tumour may be the chief complaint and is an early symptom, but as such is usually overemphasized. It may be painless, but when it appears, diagnosis is rarely in doubt. In aortic arch and innominate artery involvement, a tumour mass is usually seen at the second and third costal margin and appears as a round swelling which can be seen and felt during systolic pulsation.

Palpitation is complained of in a few cases. There are, however, no features differentiating it from palpitation from other causes.

Among the important objective phenomena is pulsation. It is more common than the presence of tumour. It is usually of two types. The first is a diffuse shock seen anywhere in the chest, frequently occurring in the ascending aneurysm. The second type is diffuse but no distinct

shock is noted. Usually it is seen in the second right or left intercostal spaces or in the back.

Frequently recurrent laryngeal involvement is overlooked because of the inability to make an examination, or more commonly, probably because of neglect during the examination. It is usually the left recurrent nerve which is affected. Changes in the voice appear late.

The pulse felt at the aneurysmal sac is usually later than the apical impulse but this of little diagnostic significance, because of the small difference in time. The radial pulse usually does not yield a great deal more.

Tracheal tug is positive when an aneurysm presses upon the left bronchus or the trachea near the left bronchus and is more marked during inspiration. It is positive in less than one-half of cases. It may be present to a slight degree in some other conditions.

Dullness, usually substernal or parasternal, is an important finding. It may also be found in the subclavicular, axillary and interscapular spaces.

The findings on auscultation are of two varieties: (1) heart and aorta, (2) lung. Adventitious sounds in heart may depend upon the contents of the aneurysmal sac and conditions at orifice. Bruit over the aneurysmal sac is not an important finding. In reference to lung, findings are associated with diminished expansion and lagging respiration.

Radioscopy is today playing an important part in aneurysmal conditions[2]. With the fleuroscope an aneurysmal shadow can often be made out. Not infrequently this is the only convincing sign of the disease. X-ray plates also prove very helpful in diagnosis.

SUMMARY

1. A case of aneurysm of the thoracic aorta with involvement of the innominate artery is reported.

2. Subject is discussed as to incidence, aetiology, and diagnosis.

I wish to thank Dr. D. H. Nichol for his permission to report this case and for his helpful suggestions.

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Injection Treatment of Varicose Veins

H. M. SIMPSON, M.D., M.Sc., F.R.C.S. (Edin.)

THE obliteration of varicose veins by injection is now a universally accepted method of treatment. The indications, the sclerosing solutions and the technique are fairly well standardized, consequently one now writes about this subject with a certain amount of hesitation.

However, I wish to draw attention to several problems which have presented themselves to me and most likely have to all who have treated varicose veins by the injection method. These problems may be described as follows:

(1) Non-relief of symptoms after successful obliteration of the varicose veins.

(2) Recurrences.

(3) Complications.

NON-RELIEF OF SYMPTOMS

The failure to obtain relief of symptoms following successful obliteration of the varicosed veins is usually due to a mistake in diagnosis. Frequently a patient's veins are treated when his complaints originate in another source.

A review of a large series of cases, collected since 1927, which have been treated at the varicose vein clinics at Victoria Hospital, St. Joseph's Hospital, Queen Alexandra Sanatorium, and in my own practice, shows that the vast majority of these patients came seeking relief from the following signs and symptoms referable to the lower extremities:

(1) Dilated Veins, (2) Pain, (3) Dermatitis, (4) Ulcer, (5) Oedema, (6) Fatigue, (7) Colour changes.

INJECTION TREATMENT OF VARICOSE VEINS

If every dilated vein of the lower extremity is regarded as the cause of the above group of symptoms and is treated as such disappointment in the result will often follow.

Because of the importance of correct diagnosis to the final result, each patient should be subjected to a very careful investigation of the lower extremities in addition to an equally careful systemic examination.

The following conditions must be excluded or recognized before the veins are injected:

(1) Orthopedic Conditions:

- (a) Transverse and longitudinal arch lesions.
- (b) Disease or structural abnormalities of the ankle joint.
- (c) Disease or structural abnormalities of the knee joint.
- (d) Pathology involving lower femur, tibia, fibula or bones of the foot.

In order that these conditions may be eliminated as a possible cause

of symptoms a very thorough orthopedic examination, supplemented, when indicated, by a roentgenological investigation, should be performed.

(2) Peripheral Vascular Disease:

A.—Vasomotor or Functional Type.

1. Vasoconstricting—(Raynaud's Disease).
2. Vasodilating—(Erythromelalgia).

B.—Obliterative or Organic Type.

1. Thrombo-angiitis Obliterans.
2. Arteriosclerosis.

An estimation of the circulatory background of the symptoms must be carefully obtained if one has the slightest reason to suspect one of the above diseases.

A careful inquiry concerning the type, situation and effect of rest upon the pain should be made. The appearance of the extremity, after exposure to room temperature, when elevated, horizontal and dependent, must be carefully noted. The absence of some or all of the usual arterial pulsation is an important sign. Lastly, the temperature of different areas on the same limb, and corresponding areas on both limbs, may aid in diagnosis.

The various lesions classified under Peripheral Vascular Disease are not as uncommon as once supposed. We have been impressed by the number of early cases which have been found chiefly, I believe, because we are watching for them. There should not be any great difficulty in recognizing these cases and treating them as such and not as varicose veins.

(3) Systemic or Constitutional Disease:

(a) Lymphatic Obstruction.
(b) Diabetes.
(c) Cardiac Disease.
(d) Renal Disease.

The diagnosis of diabetes, cardiac and renal disease need not be discussed.

It is important that the presence of chronic lymphatic obstruction be recognized. The history, appearance of extremity, and microscopic examination of a section will establish the diagnosis.

Very often the presence of varicose veins is complicated by one of the above conditions. If such be the case the varicose veins should be obliterated, the co-existing condition also treated, and the patient warned of the danger of non or partial relief of symptoms.

RECURRENCES

Be certain that they are true recurrences and not new developments. Frequently we see patients who complain of recurrences which in reality are new varicosities. It should be explained to them that injection will obliterate the existing veins, but has no influence on the original cause. Very frequently the factors (namely previous infections and endocrine upsets) which produced the former varicosities, may still be present and there is nothing to prevent new varicose veins developing.

Also veins normal in size run parallel to the varicose veins previously injected and when these dilate the patient is certain that the old varicosity has recurred.

It is true, however, that recurrences do occur and their causes may be enumerated, as follows:

1. Non patency of the deep venous system. The varicose veins present are in reality a collateral circulation. In such a case a careful history will suggest such a possibility and it will be proven by the use of a trial bandage. If the deep venous system be obliterated the bandage will aggravate all the symptoms instead of alleviating them.

2. Failure to recognize the extent of the insufficiency of the venous system. The veins are more likely to recur if the communicating system be involved in addition to the saphenous systems. In such a case a double Trendelenburg sign and a strong impulse on coughing at the sapheno-femoral opening are present.

3. Too great dilution or insufficient concentration of the sclerosing solution.

4. Failure to thrombose the saphenous vein to the saphenous opening.

5. Recanalization due to a soft thrombos or a strong reflux from the upper portion of the vein.

PREVENTION OF RECURRENCES

1. Control positively and accurately the solutions injected. Finger and thumb control syringes enable the operator to carefully control the solution. Quinine Urethane is employed in most instances as it has been found to produce the most satisfactory sclerosing effect with the minimum amount of trauma. Vein occluders are used to keep the solution in the segment injected.

2. Avoid solutions which coagulate the blood.

3. Aim at a definite sclerosing effect at many scattered sites along the vein. An attempt is made to avoid massive thrombosis.

4. Ligation of great saphenous veins at sapheno-fermoral junction. We believe this simple procedure, when indicated, does more to prevent recurrences than any other single factor. For the past several years every patient with varicosity of the great saphenous vein above the lower one-third of the thigh has been advised to have the ligation performed preceding injection. It reduces the number of injections required as well as preventing recanalization of the thrombus.

5. Great saphenous vein must be thrombosed and firm to the sapheno-fermoral opening.

6. Careful post-injection supervision. The injected extremities should be kept bandaged; the patient urged to keep on his feet and return at definite intervals for examination.

COMPLICATIONS

1. *Pulmonary Embolism.* This complication is mentioned first because the fear of it has influenced many patients to forego relief from

a distressing group of symptoms. It is the most serious complication and, fortunately, the most rare. It is so rare that one may practically dismiss it. Three factors may be predisposing (a) Acute infectious thrombo-phlebitis. (b) Coagulating sclerosing solutions. (c) Prolonged immobilization.

2. *Acute Infectious Thrombo-phlebitis and Periphlebitis.* This is an extremely distressing and not an unusual complication. The occurrence of it, however, may be practically eliminated if attention is paid to certain details before the commencement of treatment. No veins are injected if any focus of infection (e.g. teeth, tonsil) is suspected; no veins are injected in the presence of any acute disease or inflammatory process (e.g. influenza, furuncles, etc.) Most important of all, the absence of "Resting Infection" in the walls of the varicosed veins must be proven before injection is performed. "Resting Infection" may be demonstrated by the administration of a provocative dose of the sclerosing fluid, diathermy, or by radiation.

3. *Chemical Necrosis or Ulcer.* The cause of this complication is an error in technique. A few of these errors may be mentioned. (a) Too large a needle, too blunt a needle, too long a bevel, each will injure the vein wall and allow solution to escape into the surrounding tissue. A size 25, 1 inch, intravenous bevel needle has proven most satisfactory. (b) Failure to pierce the vein. This possibility may be avoided if care is taken that blood is drawn into the syringe before injection is commenced. (c) Slipping of the needle. Injection should cease when about half the solution is used and blood again drawn into the syringe in order to be certain that the needle is still within the lumen of the vein. (d) Too much or too strong a solution. The usual dose is 1 cc. of Quinine Urethane; the maximum 2 cc. (e) Too quick withdrawal of the needle and failure to apply pressure to the tissue superficial to the injection point.

Experience has not led us to believe that Quinine Urethane solution is more injurious to the perivascular tissues than is Sodium Morrhuate.

Chemical ulcers occur occasionally despite the most rigid care. Their course is prolonged but they rarely give rise to any serious difficulty.

4. *Cardio-Vascular.* Patients with an unstable vasomotor mechanism may feel dizzy and occasionally faint. If this is suspected the injection is performed in a sitting posture and the patient is made to rest for some minutes following treatment.

5. *Cramps.* There has been an extremely low incidence of immediate and delayed cramps or pain while using Quinine Urethane. Cramps are frequent following the injection of Sodium Salicylate solution.

SUMMARY

It is unfortunate if a procedure is criticized or condemned because of failure to obtain the anticipated result if the causes of failure may be avoided.

Relief of symptoms follows obliteration of varicose veins providing the varicosities are the cause of the symptoms. Incorrect diagnosis will

not occur if a thorough examination of the patient is performed before injection is commenced.

Recurrences are often said to have occurred when actually the dilated veins are new developments. In every case the possibility of further varicosities should be explained to the patient, so that the physician will not be undeservedly censored. The importance of meticulous care in technique, careful selection of the sclerosing solution, the amount of solution, the site and number of injections, cannot be over emphasized. Further, the patient should be warned that failure will result if he does not continue treatment until discharged; we have had several instances where patients have prematurely ceased treatments after several injections because of the almost complete temporary relief of symptoms, only to return to us, or some other physician, complaining bitterly of the failure of injection treatment.

The occurrence of chemical ulcer, the result of the escape of fluid into the tissues, should be extremely rare if care is taken during the injection. Thrombi and periphlebitis develop because of the presence of infection. This infection may be from a latent or active distal focus, but is more frequently from a latent infection present in the wall of the vein. The presence of resting infection may be determined in most instances by stimulation of the vein segment as previously described. The injection should be postponed until all evidence of infection has subsided.

In conclusion, I wish to point out that injection of varicose veins is not a simple procedure and should be accompanied by the same investigations and precautions as a carefully planned major operation.

A Psychological History of Leonardo da Vince (1452-1519)*

F. RIGGALL, B.A., '34

HERODOTUS has handed down the dictum that "the destiny of man lies in his soul" and if we interpret the soul as the psyche, there is no better example of the truth of the dictum than Leonardo da Vinci. He was born out of wedlock. In the stations of life his parents were far apart. His father represented wealth and education and culture of his time and his mother endowed him with that strength of body characteristic of the peasant stock from which she sprang. History is replete with examples of unions such as these whose product has changed the current of the world's affairs. William the Conqueror, like Leonardo, may be cited as an example.

Leonardo's father freely acknowledged him as his son and reared him in his own household. It is not known at what age he was received into his father's house, nor is it known whether Leonardo was born prior to his father's first marriage or between or during one of the four marriages which his father consummated. To the physician of psychological bent, however, the date is of little or no importance. What is important is that he was received into the household and that the father and son were very fond of one another. From these two facts, plus the knowledge of the existence of the nine other children by the father's last two wives, Leonardo's "lebenstyl" can be made apparent.

To argue or try to explain this condition by saying manners and morals change, is to beg the question. Morals and dogma have changed frequently but there is no valid evidence to show that human nature has made a single fundamental alteration. To the Florentine lawyer's wives Leonardo was a bastard. He represented a union which constantly reminded them that history might repeat itself and spoil their security of position. The attitude of the other children of the Da Vinci family is shown by the solid front of animosity shown to Leonardo by his seven step-brothers on the division of the father's estate at the latter's death. In this alone one can read the paying-off of old scores and the bald blazoning to the world once more the circumstances of his birth. It is true that we have no direct evidence showing that Leonardo ever suffered mental pain through the manner of his advent. Few men, however, have ever regarded the bar sinister as a thing about which to boast!

Again it is not easy to explain the reason or reasons for the affection showered upon Leonardo by his father, and the ardent response that this created in the boy. Was it a relic of an attachment for the child's mother? Was it an effort to protect the child against cruelties and discriminations at the hands of his step-mothers and their children? It is easy to think that from experiences in his early life Leonardo

*Read at the April meeting of the Osler Society of London.

derived the knowledge contained in his maxim that "the best shield against injustice is to double the cloak of long-suffering." Could we say that in this statement lies the explanation? Leonardo's whole life is an embodiment of the truth that Crookshank gives us: "Those who really wish to know human nature are only those who have experienced the worth and value of people through their own empathy, that is, through the fact that they have also lived through psychic crises, or have been able to fully recognize them in others."[1] Leonardo at an early age was subjected, without protection, to the life around him. It was under the circumstances of a divided household that Leonardo was reared, and his childhood in the Tuscan hills can be pictured as rather lonely. Being more or less "persona non grata" amongst his step-brothers, one can imagine his turning to the fields and woods and developing through his contact with Nature that power of observation which characterized his entire life. The natural corollary of observation is inquiry. Also, there can be no doubt that it was during this period of his life that Leonardo laid down those patterns of insatiable curiosity concerning the workings of natural phenomena. It is a pretty thought that it was his drawings of natural objects which, shown to Verrocchio by his father, resulted in his being accepted as a pupil by that famous painter. Modern psychology would accept and approve this fact, but would insist on viewing the cause and effects from other angles.

To understand in full the life-style of Leonardo the doctrine of Family Constellation, promulgated by Adler,[2] must be considered. Summed up in the case of Leonardo, his position in the family would compare to that of a younger child, and would be responsible for the desire to excel. This desire would be stimulated further by the circumstances of his birth. There can be little doubt that the exploration of many fields, which led to his being considered somewhat of a pottering dilettante at the court of Pope Leo X,[3] sprang from this source. With this thought in mind, extend such a personality into the situation existing at Florence in the days of Lorenzo the Magnificent, and the solution, or at least a part of it, of Leonardo's psychology begins. The complete culture of the day was represented at the court. All knowledge, secular or ecumenical, earthly or spiritual, scientific or philosophic, was available there to be tapped and explored by the inquiring mind of a Leonardo Da Vinci.

For some time, however, he appears to have devoted himself to Art. His only excursions after knowledge were confined to questions of paint and its mixing, and to the investigation of human anatomy. The first of these, we can dismiss because his results concern the field of Art alone and the only distinction an artist makes in mixing paints is to "mix them with brains." It is more difficult to assess Leonardo's work as an anatomist; and, it is exceedingly difficult at this late day to correctly assess the value of his work to posterity. It has been said that "Vesalius was undoubtdly the founder of modern anatomy—Leonardo was his forerunner, a St. John crying in the wilderness." In the absence of records to the contrary this statement may tentatively

be accepted. It must, however, be remembered that Leonardo had two enormous advantages over contemporaries in the field of anatomy, whose work may have equalled or transcended his own, but who have been "unhonored and unsung."

These advantages were two: first, that Leonardo arrived at a premier position in the world of art. Every scratch from his hand became of value so that every mark has been hunted down and preserved. And, second, Leonardo kept notes and the work he did has come down at least in part, to posterity.

Not everything that Leonardo did in the field of anatomy was of importance. Much of it shows the great Homer nodding. For one who did dissections, there is much which is a curious naive mixture of Galenical knowledge and actual observation.

The important feature of his work in anatomy, however, is found in his method and this method was characteristic of all he did. He firmly believed that "Wisdom was the daughter of Experience" and he acquired his wisdom by first-hand experience and experimentation. In this he was curiously favoured by the age itself.

For two centuries the Renaissance had been brooding. There were constant wars and rumors of wars and it has always been that wars have spurred men to progress. Leonardo lived in the epoch that saw the overthrowing of that medieval Scholasticism. This narrow Scholasticism had prevented the continuance of the fruitful Grecian speculation and had frowned on all attempts to investigate cosmology. Now, we see the reign of the fire and the sword; canonical exhortations; and papal bulls coming to an end. King Christian II of Denmark and Henry VIII of England had aimed sickening blows. In such a time experiments by an artist of note may go unpunished, whereas in less settled times a charge of sorcery might have been laid against the experimenter and followed by a death sentence.

Even here, however, Leonardo was before his time. His writings show that he was more than one hundred years in advance of Bacon in his experimentations, but, the friends who loved him for his artistry apologized for his "queerness" in many of the investigations he pursued. It is this being in advance of the age which led the medical world of the day to pay no more than scant attention to his excursions into anatomy. And, the latter fact, coupled with the status of medical teaching, probably inspired the contempt for the medical profession which Leonardo so thoroughly and completely expressed.

To fully realize Leonardo's position, one has only to read the scathing remarks of Pasilus,[5] at a later date, on this subject. Knowledge gained by the methods of experimentation used by Leonardo would have scant respect for that gained by ritual and dogma. Medicine was founded upon the teachings of Galen and to this had been added the slight contributions of Avicenna. It had been forgotten, it is true, through lack of familiarity with the original Greek, that the anatomical work of Galen

was not founded upon human dissection. His conclusions had come mainly from the results of the dissection of monkeys and pigs.

We are reminded by an exceedingly clear thinker of the present day that "Medicine everywhere ambles a generation in the rear of the philosophic 'Zeitgeist,'"[6] and nowhere in the history of medicine is the truth of this statement more amply proven than in the temporal relationship existing between Leonardo and Vesalius. And not even a Leonardo could stimulate the leavening process.

There can be no doubt that Leonardo made the effort to promulgate the knowledge he gained in the dissection room. Not to endeavour to spread his knowledge would have been entirely foreign to his nature. Brock puts the matter well when he says that Leonardo was the type of man "who, to an extraordinary breadth and clarity of outlook, which took in the whole civilization of their times, together with its historical origins, united a perfervid will and moral force which imposed upon them the task not only of themselves assimilating this material, but of handing it on to the people of their generation."[7]

It is easy to trace the conflict between "art of doing" and "science of knowing" through the warp and woof of Leonardo's life. Some of the conflict probably found an expression in the withdrawals from human society in the course of his experiments as well as in the self-reproaches with which he castigated himself. No man who has accomplished things of note that compare with Leonardo's achievements has followed the Socratic advice to "Know thyself" to the extent with which the Florentine genius pursued it.

In the ultimate analysis the desire for knowledge conquered and he yielded less and less to the urge to do. More and more facts were placed on the leaves of those notebooks which, after his death, were treated with such scant respect. And it has remained for present-day investigators to discover the wealth of subject material with which he busied himself. More and more did the passion for knowledge so take up his time that he failed to find time to write those books, often conceived and never executed, which were to convey his findings to the world.

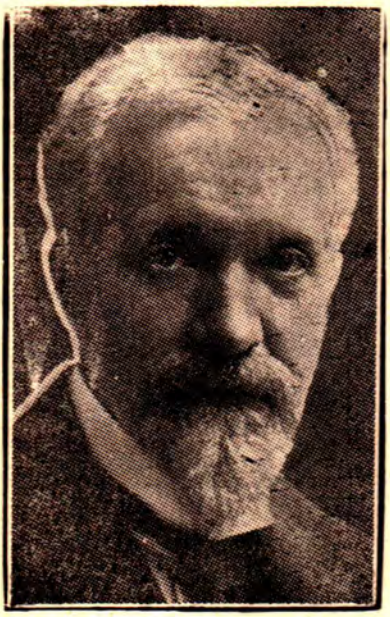
It was as an artist that his world knew him, and it was as an artist that he was deposed. Michaelangelo climbed to fame via Leonardo's shoulders and kicked the support from beneath him. But in searching for the truth Leonardo had answered his greatest question—the one which his "lebenstyl" made him strive to answer. We know little of the man's inner urgings from his own writings, but we may hope that he realized in euphoria that "as a day well spent gives joyful sleep, so does a life well spent give joyful death" (Da Vinvi.)

[1]Adler, A., "Understanding Human Nature," New York, 1927, p. 8.
[2]Adler, A., "Understanding Human Nature," New York, 1927, Chapter 8.
[3]Encyclopedia Britannica, Vol. 16, 11th edition, p. 452.
[4]McMurrich, J. P., "Leonardo Da Vinci—The Anatomist," p. 5.
[5]McMurrich, J. P., "Leonardo Da Vinci—The Anatomist," p. 20.
[6]Crookshank, F. G., "Problems of Neurosis" (Adler), p. 5.
[7]Brock, A. J., "Greek Medicine," p. 24.

In Memoriam

Dr. Archibald Byron Macallum

Emeritus Professor of Biochemistry in McGill University.
By FREDERICK R. MILLER, M.A., M.D., F.R.S.
Professor of Physiology, Faculty of Medicine,
University of Western Ontario.



WHEN Dr. Archibald Byron Macallum closed his eyes for the last time on April 5th there ended a career which has seldom been equalled for successful achievements and for broad and varied experiences; perhaps only in the life of Sir William Osler can we find a parallel to the multiplicity of useful activities of Dr. Macallum.

Dr. Macallum was a son of this district, having been born some seventy-five years ago at Belmont in the vicinity of London. Having recourse to teaching in a rural school, Dr. Macallum secured the funds requisite for following the Natural Science course in the University of Toronto; from this institution he graduated in Arts in 1880, winning the Silver Medal of his year. Then followed a short period of high school teaching in Cornwall; there he met his future wife, Miss Minnie Isabel Bruce, who has been a wise and devoted companion throughout the years. Returning to his university in 1883 Dr. Macallum served as lecturer in biology for a few years; he then proceeded to Baltimore to study physiology under Prof. Newell Martin; this brilliant exponent of the newer physiology had just been brought out from England as a member of the faculty of the newly-formed Johns Hopkins University; under Martin's guidance Dr. Macallum laid the foundation of his deep knowledge of physiology; he told me that he used to work in the laboratory from 9 a.m. until 6 p.m., doubtless pursuing his researches with his customary industry and enthusiasm. Dr. Macallum used to relate an amusing incident of his life in Baltimore in those days: he chanced one day to be in the shop of a coloured barber, when suddenly a customer, putting his head inside the door, called out, "Is the professor in?", referring of course to the figaro of the establishment. Dr. Macallum

said that always thereafter his enthusiasm for the title of "professor" was considerably weakened; indeed, it was a well-known idiosyncrasy of his that throughout life he preferred to be addressed as "doctor" rather than as "professor", even after he had attained to this status, long the goal of his earlier ambitions.

After obtaining the degree of doctor of philosophy from Johns Hopkins he once more returned to Toronto, where he secured his medical degree in 1889. From 1890 to 1908 he occupied the Chair of Physiology in his own university; here he established the first physiological laboratory in Canada, taking as his model that of Sir Michael Foster in Cambridge.

When Physiology in Toronto was subdivided into Physiology and Biochemistry he assumed the latter Chair, subsequently occupying a similar post in McGill University; prior to going to Montreal he acted for a number of years as Administrative Chairman of the National Research Council, the formation of which he initiated in order to deal with the multiplicity of scientific problems which arose during the war years; in this work he had the support of the prime minister of the day, Sir Robert Borden, as also of the late Major Hume Cronyn, M.P. for London.

A programme of administrative work of the magnitude outlined above would have absorbed the full energies of most men; nevertheless, Dr. Macallum had found time for his fundamental discoveries in the realm of microchemistry of the cell; here he was really a pioneer and his profound studies on the localisation of cellular iron and potassium have given him imperishable fame in biochemical literature. Among his voluminous writings was a long article in the celebrated "Ergebnisse der Physiologie", in which he reviewed the entire subject of cell microchemistry, enunciating his own views and clarifying a field, of which he had made himself the foremost protagonist of his time.

In recognition of his scientific attainments Dr. Macallum was in 1906 elected a Fellow of the Royal Society of London, being the first graduate of the University of Toronto to be thus honoured; he was the recipient also of a number of university honorary degrees and was recently elected a Fellow of the College of Physicians of Philadelphia, a distinction which he highly prized.

It is impossible in the limits of this article to give an adequate account of the scientific attainments of Dr. Macallum; I desire, however, to make mention of a few personal recollections, which reveal the character and personality of one of Canada's leading scientific men.

I came to know Dr. Macallum many years ago in his physiological laboratory in Toronto, which was, as already stated, the first of its kind in this Dominion. Working with difficulty at some of the intricacies of physiological technique I would be approached by a tall, dark gentleman, who would ask in deep, sonorous tones, carrying inflections of grave seriousness, as to whether I was getting satisfactory results; in these small encounters he was always the great man, never trivial nor

in any sense superficial or indifferent; one gained the impression at once that the success of his students was a matter of concern for him and that, childish as our efforts might seem to him, he viewed them with interest, thinking that they might later lead to results of importance. How often have I tried in after years to emulate, in small measure, his grave inspiring ways in dealing with my own students.

Towards the end of my medical course in Toronto I had completed my first paper, dealing with problems of nerve-muscle physiology; it was undoubtedly a very youthful production; nevertheless, realizing my sincere and painstaking efforts, he read it carefully and, after suggesting a few minor changes, recommended it for publication in the Journal of Physiology. Later, I well remember him standing in the hallway and saying to me with a half-quizzical smile: "I have just heard from Prof. Langley, who says that your paper will be published in the Journal of Physiology." My evident joy met a kindly reflection in himself; it was my first milestone on the highway of science.

Since Dr. Macallum took up his residence in London we became very intimate friends and it seemed indeed as though the difference in our ages had ceased to exist. Over a cup of tea in my laboratory he was wont to offer me, from his wide experience, encouragement and mature advice. A favourite adage of his was: "Work away at research; never let up on that; it is the only thing that brings permanent satisfaction."

It had been my privilege to know intimately Dr. Macallum's distinguished brother, Dr. Hugh A. McCallum, formerly the Dean of our Medical School; though differing in outward appearance the two brothers resembled each other in many notable respects: both possessed brilliant minds and were by nature idealists, glorifying intellectual over purely material achievements; both were determined and resourceful in the face of obstacles and discouragements; both exercised a powerful and elevating influence over their associates. In any success I may have had in developing my department in the Medical School it has seemed as though I were helping to realize the ideals of Dr. Hugh.

These two great men have passed on but surely their influence remains as a heritage among the many students and colleagues who came under their spell; it is scarcely to be hoped that Canada will ever see two such men again.

Dr. A. B. Macallum is survived by his widow and three sons: Dr. A. Bruce Macallum, dean of the Medical School of the University of Western Ontario; Mr. E. N. Macallum, president of the Synthetic Drug Company of Toronto and Mr. A. D. Macallum of the Du Pont Plant at Niagara Falls.

Dr. A. B. Macallum was born in this neighbourhood and here in London rest his mortal remains; may we, as his successors, be guided by the example of his sincerity, his loyalty and his integrity of character, as well as by his aspirations towards the highest ideals in medical research.

Editorial

CIVILIZATION

IS our present day civilization becoming too complex? Have we been on the right track for the past few thousand years? Throughout the pages of the daily press you see frequent mention of "the complexity of modern civilization." Is that the situation or is it just a blanket term to excuse some of our confusion? It seems apposite to remark that life is still governed by three simple fundamental principles: (1) Sex, with its desire to propagate the species. (2) Subsistence, manifested in such ways as the desire to accumulate those things with which to maintain life. (3) Survival, a desire to protect one's own life against invasion. These may be manifested in various ways and may be exaggerated in some persons to the point of becoming perversions. Regardless of the extent to which any one of these three principls may be carried it can still be traced to its simple origin. The miser with his hoarding of gold is simply a person in whom subsistence has become the dominant factor. This is a homely example but it serves as a good illustration of the possible ramifications of the fundamental principle.

These fundamentals lead us all in the same direction but by many and varied routes. It is therefore imperative that each individual be allowed to wend his way guided by the general law but with the addition of his own minor variations. Just as no two soloists can give an identical rendition of a piece of music, even so is it impossible for any two persons regardless of their training to proceed to any task in an identical manner. It is impossible to standardize human emotions, therefore let us beware any attempt to standardize human life.

Life and its motivations are not one whit more complex than they were generations ago. It is simply our momentary confusion that makes life seem unintelligible. The civilized world of today is just passing out of a great crisis. Things as a result are in a state of consternation and we are just groping around trying to obtain our perspective. This then is the time to brush aside the foliage which may easily be mistaken for the life of the plant and search for the roots; in other words, for that part of the organism which makes possible the foliage. Then to nurture and tend the roots so that the plant may grow larger and its flowers more beautiful.

As our feet begin to touch firm ground in our readjustment to life following this chaos may we remember the three fundamental principles and continue to use them as the basis of our civilization. They have brought us from the state of Darwin's "Primordial Horde," to that which we now enjoy.

The pendulum in places such as Russia seems to have swung to the far side of the arc and they are tending to only one root—trying to standardize subsistence. According to them and their advocates, all persons, in any given field, regardless of their ability should receive equal monetary remuneration. This fails to take into consideration the fact that one person may perform his task with much greater skill and perfection than his fellow. Virtue may be its own reward but it is only in very isolated instances that this has proven a satisfactory form of recompense. Then should the progress of an individual, which is simply a unit of universal progress, be impeded by holding him back to the pace of his slower fellows. If civilization has reached its peak of perfection, very well, let's all sit down together, fold our hands, open our mouths and wait for providence to send the proverbial fly. If there are yet improvements to be made let us beware of instituting any measures that completely protect the weak and make it doubly difficult for the strong to forge ahead. Let us look carefully to see that we of the lesser talents are not trying to protect ourselves at the expense of those with greater talents and incidentally, as was mentioned before, prevent the progress of civilization.

MEMOIRS

WITH this issue the Journal has completed the fourth year of its life. Its fourth volume has been published we hope with a success equalling that of its predecessors. It is fitting that we should set down in these pages a note of appreciation for the splendid co-operation and unanimous support given by all members of the staff to the publication of this volume.

Throughout the present tenure of office it has been the attempt of the staff to promote two projects. First, that the Journal should serve as a means of expression for undergraduates and graduates alike. Second, that this expression be such that it could serve as a method of bringing to fellow graduates and undergraduates, topics of interest and instruction. In support of this policy the abstract department was greatly increased. It has been very gratifying to see how much our readers have appreciated this change.

As we pass the torch to our successors we take this opportunity to wish them every possible success with the fifth chapter in the life of the University of Western Ontario Medical Journal.

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Last month there occurred the death of E. Mead Johnston, President of Mead Johnston & Company. With his passing finis written to another chapter in the story of men who faithfully devoted their time to serving the Medical profession.

Abstracts

EXTRA-CAPSULAR FRACTURE OF THE FEMUR IN CHILDREN

EICKENBERG AND LECOCQ

from Jour. Bone and Joint Surgery; 14; 801; 1932

The authors criticize the practice of open operation in fractures of the femur especially in the lower two-thirds and point out the advantage of the Russell traction treatment.

They point out that the aim in treatment of a fracture is restoration of normal function, the requisites for which are (1) union, (2) normal alignment (3) normal length. While this could be obtained by open operation, it is an undesirable treatment because it (1) delays union thus requiring (a) longer fixation, (b) longer hospitalization, (c) delay in the restoration of the movements of the knee, (d) greater atrophy of muscles. (2) Danger of bone infection is increased, usually osteomyelitis with eventual limitation of movement and shortening.

These may largely be eliminated by use of the Russell balanced traction, which combines abduction, suspension and traction. Though apposition may not always be exact, full length and perfect alignment were secured in a large series of cases. Further, the apparatus is easily set up and is quite simple. It requires an overhead frame, five pulleys, adhesive tape, towel, rope and two weights.

The hip is supported by pillows at an angle of 25° to 30° flexion, with the knee at about the same degree of flexion. Adhesive tape strips are applied to the leg from a point immediately below the knee down to the malleoli and fastened to a foot piece. A sling 5 inches wide is placed under the knee and suspension is gained by a rope passed through a pulley attached to the overhead frame. This same rope is carried downward to a second pulley fixed to the upright, through a third pulley attached to the foot piece. It is then carried out to a fourth pulley fixed below the second on the upright and a five pound weight is tied to the end. The leg may be supported on a pillow and suspended by a second sling. Abduction may be increased or decreased by moving the overhead bar with pulleys attached.

By this arrangement a force "A" is directed upward for suspension. A force "B" is exerted as traction on the leg. The resultant of these two forces is a force "C" exerted practically in the long axis of the shaft of the femur with traction at the knee joint. This is quite similar to piano wire traction after the method of Kirschner and is just as efficient and gives a position of physiological rest.

Traction is maintained from 3 to 4 weeks with an average disability of 9 weeks. A good functional result is obtained and there is the added advantage that the patient is thoroughly comfortable and his body may be shifted about without fear of injury.

—W. E. LAMONT, '34.

EXTRA-ARTICULAR BONE GRAFT TREATMENT FOR TUBERCULOSIS OF THE HIP

HAAS, S. L.

HAES, S. L.

Jour. Bone and Joint Surg.; 15; 3; 743; July, 1933

A study of fifty cases at Shriners' Hospital in California show that the extra-articular graft method for fixation in tuberculosis of the hip joint is a definite curative operative procedure that reduces the time of treatment. Forty per cent. of the patients required more than one operation. In primary successful operations, the patients are able to walk unaided in 1 - 1½ years after operation although the duration of disease averaged five years.

The presence of sinuses and abscesses does not affect primary failure although a clean field is desired.

Failure of primary operation is found in the acute cases of short duration in which there is little destruction of the head and involvement of the acetabulum. The more chronic the disease the greater

is the chance of primary successful articular arthradesis.

In cases where a primary failure may be anticipated the writer recommends graft from the tibia or upper femur be used in conjunction with the graft from the ileum.

—DENNISON, '34.

A TREATMENT FOR FRACTURE OF THE NECK OF THE FEMUR

LEADBETTER, G. W.

Jour. Bone and Joint Surg.; 15; 4; Oct., 1933

It is essential to select a method which will cause the least amount of primary shock during manipulation, to utilize fixation which will adequately maintain reduction and to secure anatomical reduction and firm union with good physiological results.

The after-care of the patient is the most important factor in the preservation of life. Good elimination and frequent change of position help to prevent (1) general toxicosis, having its origin in the intestinal tract, and (2) pulmonary hypostasis. Prevention of these two complications aid in the prevention of a third—mental bewilderment, delirium or psychosis.

Plaster fixation is the best means of treatment. This has two objectives: (1) to immobilize the fracture and (2) to facilitate post-operative care. The technique of application is as follows:

After reduction of the fracture and with the leg in the proper degree of abduction and internal rotation, a single thickness of glazed cotton is placed about the torso from the nipple line over the affected hip to a point half way between the hip and the knee. A long strip of ½ inch felt is then placed to encircle the pelvis from just above the iliac crests to the trochanters. The body position of the cast is applied first. It must be tightly applied and exert firm pressure over the hip. An anterior and posterior slab are moulded to the contour of the leg and are bandaged closely to the skin. A roll of plaster may be applied about the two moulded splints if desired. The cast is then trimmed around the perineum and pelvis in the usual manner. A U-shaped piece is cut from the body section, leaving only a six-inch band across the lower abdomen. The sides of the body must be well supported, however, to prevent swinging the torso.

The author also describes his method of reduction of the fracture. He states that his method is anatomically sound, simple, non-shocking, and offers opportunity for 100% reduction. The technique is as follows:

The patient is anaesthetized and placed on a fracture table. The sound leg is harnessed to the foot stirrup. The injured hip is flexed to a right angle, and the knee flexed to a right angle. Manual traction is applied in the axis of the flexed thigh, accompanied by slight abduction of the femoral shaft. The thigh is then internally rotated about 45 degrees. Then slowly circumduct the leg into abduction, retaining the internal rotation.

The amount of abduction necessary can be calculated from the X-ray film. It will be the difference in degrees, between the angle made by the fractured neck with the shaft, and the corresponding angle on the sound leg.

Following reduction by the above method, reduction can be tested for by the following test, which the author considers infallible. The heel of the injured leg is placed on and supported by the outstretched hand. If reduction is complete, the leg will remain in position, and not evert itself.

—A. L. HUTTON, '34.

EARLY TREATMENT OF CONGENITAL DISLOCATION OF THE HIP

PROF. VITTORIO PUTTI, Bologna, Italy

Jour. Bone and Joint Surg., 15; 1; Jan., 1933

The author makes a plea for earlier recognition and earlier treatment of congenital dislocation of the hip. By analysis of results obtained in 1,500 cases in 30 years in Germany, he shows that less than 50% secure perfect and permanent results. Comparable results have been obtained in Italy.

From a study of these cases, the following conclusions are drawn:

(1) No complete and permanent restoration of function occurs without perfect anatomical reduction. It is a delusion that one can have a result permanently satisfactory in function in a hip incompletely reduced.

(2) Abnormalities of capsule and ligaments are more important causes of imperfect reduction or instability than bony abnormalities.

(3) The success of treatment depends upon the joint reactions, the manifestations of which are generalized osteoarthritis involving all parts of the joint and osteocheridritis which affects chiefly the femoral epiphysis.

(4) The age of the patient is the most important factor in the result. From the second to the third year has been generally considered as the most favourable age for treatment. The author disagrees with this and recommends abolition of the lower age limit. He advises that treatment be commenced the very moment the deformity is observed—even if this is the day of birth. He also considers it practical and advisable to submit every new born child to routine X-ray examination of the hips for early detection of dislocation.

In a series of 119 cases of congenital dislocation of the hip, treated by the author by the abduction method, the average age was four months, only four being over one year old. The term of treatment varied from 4 to 20 months with an average of about 8 months. Of these 119 cases, 113 were completely cured.

This method avoids all operative trauma, dispenses with anaesthesia, is incomparably less risky and less complicated than that in common use, and if used in cases under 12 months of age, gives a high percentage of perfect anatomical and functional results.

—A. L. HUTTON, '34.

THE RESUSCITATION OF NEWLY-BORN BABIES SHOWING NARCOSIS

SHUTE, E. and DAVIS, M. E.

Can. Med. Assn. Jour., 29, 252-257, 1933

A fair proportion of newly born babies show signs described as asphyxia, narcosis and anaerosis. These are classified into (1) "asphyxia pallida," due to difficult labor and characterized by pallor, limpness, slow heart, absent reflexes and (2) "asphyxia livida," of which the prognosis is better. The bluish or purplish color soon disappears. Morphine narcosis is in this group. Child takes preliminary breath and relapses into apnoea.

The author states that morphine has maximum effect on fetus if a period of 1 to 6 hours elapses between time of delivery and time of birth.

In a group of 120 newly born infants showing signs of narcosis, 36 were resuscitated by various mixtures of carbon dioxide and oxygen.

The writer finds pure carbon dioxide followed by pure oxygen for short periods the best means for resuscitation.

For general clinical use a 10 to 30 per cent. mixture of carbon dioxide in oxygen, followed by oxygen, is recommended.

—M. B. RYCKMAN, '35.

SURGICAL ASPECTS OF POLYCYSTIC KIDNEY

WALTERS, W. and BROSCH, W. F.

Surg. Gyn. and Obst., LVIII, 647, March, 1934.

From observations on 85 cases the authors conclude that surgical treatment of polycystic kidney is indicated in certain conditions. Pre-operation renal function tests are essential—the excretory being the more accurate here. Blood urea above 50-60 milligrams per cent. is a contra-indication for operation except as an emergency. In unilateral disease the function of the other kidney must be investigated. Intravenous urograms show bilateral disease and give an index of function. Pain and hemorrhage are common symptoms. Diffuse or localized infection are the usual indications for operation, which is theoretically justified, by aspiration or excision of the larger cysts — also controls hemorrhage. In the case of marked destruction by cyst-formation or infection nephrectomy may be necessary. Complications are calculus, tuberculosis and neoplasm. The Rovsing operation is theoretically justified but secondary infection or persistent urinary fistula may be sequelae. While those submitting to operation lived a long time after operation the same was true in similar cases where surgery was not employed.

—J. A. LEWIS, '35.

THE RELIEF OF PAIN IN LABOUR WITH NEMBUTAL

MCGUINNESS, F. G.

Can. Med. Assn. Jour., 30; 162; 1934.

The author reports the results of 140 confinements in which nembutal was used. This drug, one of the barbiturates, is used to produce amnesia rather than analgesia.

The routine administration for a patient of 160 lbs. was 6 grs. as an initial dose, with 3 grs. in three hours and 1½ grs. every two hours, if necessary, till delivered. It is given by mouth in capsules.

The results obtained were:

(1) The mother sleeps between pains, but can be wakened sufficiently to respond. Some fall in blood pressure and restlessness were noted. Amnesia was complete, or almost so, in 81%; fair

with many "islands of memory" in 11%; slight or absent in 8%.

(2) The labour was essentially normal, with little influence on the force and frequency of contractions or haemorrhage.

(3) Seventeen of the children showed some degree of respiratory embarrassment. No after-effects were noted.

(4) The puerperium was normal. A feeling of well-being and a rapidity of convalescence were noted and attributed to the elimination of fear and nervous tension.

Contraindications: respiratory obstructions and infections, low blood pressure and cardiovascular or kidney damage.

—J. H. BEATTIE, '35.

SOME PITFALLS IN THE DIAGNOSIS OF CONDTIONS GIVING RISE TO CHRONIC ABDOMINAL DISTRESS

MCEACHERN, J. S.

Can. Med. Assn. Jour., 30; 1; 8 January, 1934.

Patients who complain of abdominal discomfort belong to one or other of three groups. The first group includes those suffering from an intraperitoneal surgical condition and nothing else. The second group includes those suffering from abdominal surgical disease, associated with either an extraperitoneal surgical lesion or some medical disease or dysfunction. In the third group are those who have not an abdominal surgical disease. The patients all have some degree of pain. Abdominal pain means that there is a pathological condition in organs or structures connected directly or indirectly through innervation with the lower six dorsal nerves.

Intraperitoneal surgical lesions may be mimicked by disease and dysfunction in the peritoneal cavity, the thorax, the anterior abdominal wall, the pelvis, the retroperitoneal cavity and the bony spinal column, and its contents. Some of the confusing conditions which the author discusses are dysfunctions of the colon, essential achlorhydria, gastric crisis of locomotor ataxia, caries of the lower dorsal vertebrae, chronic hypertrophic osteoarthritis, aneurysm of the abdominal aorta, disease of retroperitoneal glands, disease of the kidney, and ureter, basal pleurisy, pulmonary tuberculosis, coronary occlusion, myaglia of the anterior abdominal wall, epigastric hernia, lead colic, the gastro intestinal disturbances of thyro-toxicosis and syphilis. The author stresses the importance of a rectal or a vaginal examination in searching for pathology of the pelvis.

—OLIVE STEWART, '35.

ON PREVENTIVE VACCINATION AGAINST TUBERCULOSIS WITH B.C.G. AS PRACTICED BY DOCTORS IN THEIR OWN FAMILIES

CALMETTE, A.

Brit. Jour. Tuberc., 27; 1; Jan., 1933.

This reports the results of a questionnaire sent to 280 practicing physicians in France. These doctors gave the vaccine to their own children therefore they had every opportunity to observe them closely following the vaccination. Of 514 children vaccinated at least 60 have lived in contact with tuberculosis. Only 7 of these 514 (1.3%) have died—one supposedly from tuberculosis. Over 7,000 other children, outside their own families, have been vaccinated by these 280 doctors. Every one of the 280 agreed that the B.C.G. vaccination is harmless. Many of them first used B.C.G. only in exposed children but later extended its use to all children under their care because they found cases dying of tuberculous meningitis and other acute forms of tuberculosis, with no apparent source of exposure. They agree that there is a considerable decrease in the general, as well as the specific, infant mortality.

The author feels that vaccination with B.C.G. should be a routine but not obligatory because this would produce an antagonistic feeling towards it.

—P. M. YOUNG, '35.

SPECULATIONS ON THE ETIOLOGY OF RHEUMATOID ARTHRITIS BASED UPON PHYSIOLOGICAL STUDIES OF NORMAL JOINTS

BAUER, BENNETT & SHORTT

New Engl. Med. Jour, 208; 20; 1035; May, 1933.

Man has had to contend with rheumatoid arthritis for centuries, physicians have treated it for centuries, many forms of therapy are advocated and employed, yet the results obtained are at times anything but gratifying.

The concise description of the disease given in this article enables one to understand what the physician is confronted with in each case. It is no respecter of age, sex, race, or social position. Heredity is a probable factor.

All joints contain synovial fluid and various theories have been proposed concerning its origin and nature, and while

no one of these has gained general acceptance, the evidence given in the article strongly favours the fact that synovial fluid is a transudate from the blood stream. The composition is very similar to the blood serum, with the addition of some mucin-like substance. The absorption of the serum globulin and serum albumin from the synovial cavity takes place entirely through the lymphatics, which form a dense network in the subsynovial tissue. Passive movements of the joints and massage of the neighbouring muscles hastens the absorption of the proteins from the joint cavity.

The results of precipitin reactions of egg white in the blood stream and the thoracic duct lymph following injection into the knee joint are given in detail, showing the relative absorption from exercised and unexercised joints.

The salient feature of rheumatoid arthritis is that it is characterized by remissions and relapses, with natural remissions very easily interpreted as cures. The etiology is admitted as being unknown. There therefore appears to be the necessity for a definition of the word "cure" when used in connection with this disease.

Some of the statements set forth in the article are as yet not fully proved. However, they do suggest methods of approach which may lead the physician to a better understanding of Rheumatoid Arthritis.

—W. D. MARSHALL, '36.

DIVIDED DOSES OF TYPHOID VACCINE IN THE FEVER THERAPY OF NEUROSYPHILIS

DRIVER AND SHAW

Jour. Amer. Med. Assn., 101; 26; Dec., 1933.

Fever therapy is generally admitted to be of value in the treatment of neurosyphilis. The beneficial effects are roughly proportional to the height of the temperature obtained. The malarial treatment which has been used extensively has certain well known limitations. Typhoid vaccine has been used but difficulty has been found in producing the temperatures of 104° or 105° F. which are necessary for maximal benefit.

In the study of 19 cases of neurosyphilis and two cases of resistant syphilis with associated interstitial keratitis and iritis, typhoid vaccine was administered, using the divided dose method as described by Nelson. The techinque involved the injection of a relatively small dose of typhoid vaccine, waiting until the maximum temperature was reached, and then injecting a similar dose of the vaccine. Adequate temperatures were obtained with the use of much smaller injections than had previously been found necessary.

The use of the divided dose method of injecting typhoid vaccine provides a safe and convenient means of administering fever therapy, and brings the advantages of the latter to a much greater number of patients suffering from neurosyphilis.

—G. I. SAWYER, '36.

A FEW NOTES ON THE MORTALITY IN 120,000 CASES OF SPINAL ANESTHESIA

ANGELESCO AND TZOVARU

La Presse Medicale, No. 9, Nov. 25, 1933.

The authors discuss spinal anesthesia and analyze 22 statistical series of 120,037 cases showing a mortality of 38 or 0.031%. Unlike general anesthesia, which is a total and temporary intoxication, spinal anesthesia is a simple functional interruption limited to the lower parts of the spinal cord.

The great mistake in the use of spinal anesthesia is the failure to recognize that it has its contraindications, the result of arterial hypotension mainly. These are: (1) Severe hemorrhage; (2) malcompensated cardiopathy; (3) oliguric hypotension; (4) acute toxemia; (5) septicemia (with positive blood cultures).

The anesthetics used are the less toxic but equally hypotensive succedanea of cocaine and stocaine: novocain, tropacocaine, percaine, tutocaine, allocain and syncain. A corrective of arterial hypotension is usually added in the form of ephedrine.

In conclusion, invaluable rules are laid down as a means of lowering the mortality rate: (1) The utmost regard for contraindications; (2) thorough, careful preoperative preparation of cachectic, hemorrhagic, or intoxicated patients; (3) avoidance of meningitis, respiratory syncope and other accidents by practicing spinal anesthesia, according to a proper aseptic technique and limited in its extent along the spinal cord; (4) immediate intervention by every known means (ephedrine, lobelin, adrenalin, carbon dioxide inhalation) at the very first sign of danger to the patient's life; (5) close post-operative surveillance of patient for 24 to 48 hours.

The rigid observance of such precautionary measures will undoubtedly prove useful in perfecting this method of anesthesia and thereby enhance its security.

—HENRI J. BREAULT, '36.

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