5 years. This fact, together with the embryological and phylogenetic position of the appendix, lends force to the theory that it arises in displaced or embryonic remains; but when we ask why the displaced cells should take on malignant characteristics at this early age, we are met by the host of problems related to carcinoma in general. Again, the appendix and inflammation are closely related, and the most frequent age at which carcinoma of the appendix appears corresponds to that at which inflammation of the appendix appears. The oldest patient was aged 81 years, reported by Rogg in 1913. More cases have occurred in females than in males, but statistics here are rather confusing, because although appendicitis is acknowledged to be more frequent in males, the female abdomen is more frequently operated upon than the male abdomen, and more female appendices are sent for routine section.

The case under consideration was that of a small girl, aged 13 years, who for the previous six months had complained of occasional attacks of sharp pain in the abdomen. Recently the pain had become localized to the right iliac fossa, and was followed by nausea. The mother stated that the pains were becoming more severe and made the child cry out. The appetite was good, the bowels regular, and there was no loss of weight.

On examination the girl appeared quite healthy and well nourished. There was no anaemia, or any abnormal general features. Palpation of the abdomen detected some "guarding" of the muscles over the right iliac fossa, and there was distinct local tenderness on pressure. Per rectum nothing abnormal was detected. A diagnosis of subacute appendicitis was made, and operation decided upon.

On opening the abdomen the appendix was found lying quite free in the abdominal cavity, without adhesions. The base was thick, hard, and solid, as though a hard green pea had been inserted into it. The distal portion was slightly distended. The caecum appeared normal, and there were no enlarged mesenteric glands. The appendix was removed, together with a small cuff of the caecum, the stump infolded in the usual way, and the abdomen closed. On cutting into the nodule at the base of the appendix it was found to be very hard and solid, almost obliterating the appendix lumen.

The report on the microscopic section by one of us (H. S.) was as follows: "The sections made from the nodular appendix show a carcinoma which in places resembles the basal-celled type, and in others a scirrhus type. In most places the lining mucosal epithelium is intact, but in one place there is infiltration of the mucosa by malignant growth. The growth extends to the peritoneal surface. The stroma is mainly fibrous."

Diagnosis.

As in the case we are reporting, no one has yet made a diagnosis of primary carcinoma of the appendix before operation. It may be found post mortem, it may be found on routine microscopical examination of the appendix—which, indeed, is the reason for the increasing number of cases recently recorded—or it may be recognized when the abdomen is opened. The case presents the usual symptoms of a subacute or chronic appendicitis and clinically is diagnosed as such, or the appendix may be perforated by the growth, and symptoms of acute appendicitis ensue.

Statistics of the Mayo Clinic and other large clinics where great numbers of appendices are examined as a routine show the frequency of primary carcinoma to be under 1 per cent.

Pathology.

It has been denied that this condition is really a carcinoma, but that the tumour represents endothelial proliferation as a result of inflammation or displaced epithelial cells. Hertzler points out in support of this view that the usual round-cell infiltration is absent, and that the connective tissue retains its acidophilic properties. For this reason the name "canceroid" has been suggested. Fortunately, the condition is generally benign, but there are several records of metastases in the liver, the peritoneum, or the lymph nodes. Also, although the growth is generally confined to the mucous and submucous layers with a tendency to infiltrate the muscular layer, it is nearly always limited by the serosa. Different types of cells have been found. The spheroidal-celled type is most common, but, as one would expect, cuboidal, cylindrical, endothelial, and mixed types and colloid degeneration may all be represented.

Selinger, in his article in the *Annals of Surgery* (1929), quotes the latest word by P. Masson:

"Carcinoids result from proliferation of the intranervous argentaffin cells of the neurocoelomic type. They pile up in the nerve fibres, finally rupture their sheaths, and infiltrate the intestinal tissue of the mucosa and then that of the submucosa."

Conclusions.

Primary carcinoma of the appendix is not so rare as to constitute a pathological anomaly, but is becoming more and more widely recognized. Occurring as it may do in young children, it provides a further field for research and speculation on the origin and nature of cancer in general. Considerations of the phylogenetic and ontogenetic development of the appendix together with this pathological change may throw further light on the problem.

The general benignity of the growth, unless it occur at the base of the appendix or infiltrate the neighbouring structures, suggests that treatment should be limited to removal of the appendix without resection of the ileo-caecal region.

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SYMMETRICAL GANGRENE COMPLICATING RHEUMATOID ARTHRITIS.

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RAYNAUD's disease has been reported from time to time as a complication of rheumatoid arthritis, giving rise to attacks of local syncope and asphyxia in the extremities, and loss of tissue, notably in the ears and the tips of the fingers. Llewelyn Jones mentions that in one advanced case in which Raynaud's symptoms developed, areas of skin over both heels underwent a necrotic change. Records of cases of symmetrical gangrene due to other causes are difficult to find, and it is for this reason that the following case was thought to be of interest.

A married woman, aged 38, with two children, stated that as a child she had always had cold hands and feet. Eight years pre-

Fig. 1.

viously she was first taken ill with an attack of acute rheumatism affecting both feet, the left ankle, both knees, and both hands and wrist-joints. The condition became gradually worse, treatment at Bath affording little relief. Six weeks before admission to hospital she noticed that her hands and feet were very cold and painful, and that the circulation was poor. Four weeks later she discovered that the right foot and the left hand were changing in colour, gradually becoming black; this change was accompanied by excruciating pain, more especially at night.

The patient was admitted into hospital on November 18th, 1929. She was pale and markedly wasted, and all four extremities showed advanced arthritic changes of the rheumatoid type. There was well-marked dry gangrene of the right foot affecting all the toes and extending proximally for two inches along the dorsum of the foot, with a well-marked line of demarcation; there was also gangrene of the left hand (see photograph, Fig. 1). The left foot

and right hand were blue, cold, and congested, but sensation in the limb was not affected. The ears were warm and of normal colour. The chest showed clinical signs of bilateral advanced active apical tuberculosis, which was confirmed by an x-ray examination; there was also evidence of myocardial degeneration. The Wassermann reaction was negative. The blood count was as follows: haemoglobin 58 per cent., red cells 3,500,000 per c.mm., white cells 15,000, colour index 0.8. No atypical cells were seen, and the urine was found to be normal.

Two days after the patient's admission the left foot became gangrenous, and a line of demarcation rapidly developed in the region of the mid-tarsal joint. Owing to the intense pain in the limb, operative measures were undertaken without delay. A periarterial femoral sympathectomy was performed in Hunter's canal,

Fig. 2.

and the femoral vein was also ligatured. At the operation the diameter of the femoral artery was found to be no larger than that of a slate pencil. Five days later the leg was amputated above the ankle-joint under local anaesthesia. Seven days later the right leg was amputated above the ankle, and the left hand at the wrist. The wounds healed rapidly, and the patient was discharged to her home two weeks later. So far there has been no recurrence of the gangrene.

Microscopical examination of the blood vessels in the amputated limbs showed the main artery with its lumen obliterated by an ante-mortem clot. There was also evidence of adhesions in the surrounding tissues, and of obliterating endarteritis in the small vessels.

The typical attacks of local syncope, pointing to Raynaud's disease as the cause of the gangrene, were absent in this particular instance. There is every reason to regard the cause as rather due to a toxic endarteritis, possibly rheumatic in origin or perhaps accentuated by the active tuberculosis, combined with thrombosis, the result of the sluggish circulation in a bed-ridden patient.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

STATIC TREATMENT OF ENLARGED PROSTATE.

THE term "static electricity" applies to electricity at rest, as stored up and held in a Leyden jar, or in the fields of a Holtz machine. In 1750 Jallabert of Geneva published a report on the medical uses of static electricity. He discovered that static administrations increased the pulse rate as well as the temperature of the patient. He also claimed that the static bath was valuable in cases of amenorrhoea, and that an increased secretion of sweat and urine was induced. Jallabert also demonstrated that paralysed muscles treated by electrical sparks responded with a convulsive movement of individual muscles wherever the sparks were applied. This was the first demonstration that the static current induces "independent muscular contractions," independent of the neuro-muscular mechanism, a property which explains the peculiar efficiency of the static modalities in effecting tissue drainage with the removal of local stasis. Benjamin Franklin and John Wesley subsequently

became advocates of the therapeutic use of static sparks. The Holtz and Topler-Holtz machines were not invented until 1865. These, and later the Wimshurst machine, made possible the production of currents in greater quantity and voltage than was possible with the friction machines.

To Dr. Morton of New York is due the credit of having discovered what are now known as the static induced and static wave currents. In conjunction with Dr. W. B. Snow much useful therapeutic work was carried out, especially in rheumatoid arthritis and other inflammatory conditions, and it was observed that removal of induration and accompanying swelling (tissue drainage), with the relief of pain, tenderness, and muscular tension, was effected with the static modalities. How is it that static electricity fills this unique role? It is because no other form of electricity is generated under anything like the same conditions as the static current, and electricity from no other source possesses to the same extent its unique qualities or characteristics, which are (1) high voltage relative to an infinitely small amperage, (2) the property of diffusion derived from the preceding qualities, (3) ionization of the air to these currents. Furthermore, the current is a constant current and a directional current of high potential, and produces its effects upon the muscular cells beneath skin and fat, whereas the low galvanic current is only effective when applied directly to muscular tissue—that is to say, static current produces cell contractions of the muscular and elastic tissues of the body independent of the neuro-muscular mechanism. Here we have a powerful remedy, safe and painless, of almost universal application, yet neglected.

The application of static wave current to diseased conditions is manifold, but I propose here to deal with the treatment of enlarged prostate, simple or post-gonorrhoeal. In treating an enlarged prostate the method employed is as follows: the patient is placed upon an insulated couch, lying upon his side; a suitable rectal electrode connected with the machine is introduced into the rectum, in the median line and in contact with the gland. The usual duration of treatment is thirty minutes, the length of the spark-gap being increased as relief of the condition permits—that is, as tolerance increases.

I have often found during a course of treatment that sexual power has been increased, and in many cases restored. In orchitis and epididymitis the relief is prompt. To explain these good results one may recall the action of the static wave current on the tissues: (1) increase in circulation; (2) contractile effect on the swollen infiltrated tissues, and on all muscular and elastic tissue in and around the gland. Briefly, massage with drainage and direct stimulation is obtained. Bearing in mind these properties, it will be seen how readily the swollen and enlarged prostate can be reduced, the symptoms relieved, and the patient restored to comfortable existence.

London, W.

ROLF CREASY.

MULTIPLE ANEURYSMS.

THE following case of multiple aneurysms may be of interest.

On September 3rd, 1929, a man, aged about 60, with one leg, arrived at a boarding-house in this town. He complained of not feeling well, and retired early to bed, where he was found dead next morning.

I performed a post-mortem examination on September 5th. He was a well-built, muscular man. The left leg had been amputated through the thigh. On the inner side of the right thigh, just above the knee, was a large, hard swelling. The peritoneal cavity was full of blood, and there was much recent blood clot in the retroperitoneal tissues. There was an aneurysm just above the bifurcation of the abdominal aorta, roughly spherical in shape, and about 2½ inches in diameter. This had ruptured through a slit 1 inch long in the anterior surface. The swelling on the right thigh proved to be an aneurysm of the femoral and popliteal arteries, and was about 6 inches long by 3 inches in diameter, and filled with laminated blood clot. No other aneurysms were found. The heart was enlarged (weight 14 oz.), and there were atheromatous patches on the aorta, but no valvular lesions.

Dr. Henderson of Bayswater, who had attended the man during life, tells me that the left leg was amputated some years ago for a femoral aneurysm which was causing gangrene of the foot. The aneurysm in the right thigh had recently consolidated and ceased to pulsate. The man denied having had syphilis.

Clacton-on-Sea.

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