(b) *Pulmonary (Chronic Bronchitis).*—The patient was suffering from very severe bronchitis and dilated heart. She could not move in bed without distress, and was extremely cyanosed. She was given open ether as an anaesthetic, and did well.

RESULTS.

(a) *Immediate.*—The maternal mortality, taking all 295 cases together, is 1.3 per cent., a mortality exactly the same as in Schauta's series of craniotomy on 76 living children; and slightly lower than the 1921 report (Eardley Holland) operation death rate for clean Caesarean section—namely, 1.6 per cent. The foetal and neo-natal mortality is 8.5 per cent., which includes all cases of toxæmia, accidental haemorrhage, and placenta prævia. The longest series of consecutive cases without a death is 157—namely, from Case 14 to Case 171, during a period of rather more than four years. It is noteworthy that many of the operations were performed in an extremely out-of-date and ill-equipped maternity hospital, and that no patient who had received a prophylactic dose of antistreptococcal serum died of streptococcal septicaemia. I think the serum helps to tide the patient over the first few days of the puerperium, when her resisting power is at a low ebb and her immunity in a negative phase. To be really useful it must be given at the earliest possible moment, and I usually give it during the operation. The one fatal case in a contracted pelvis after attempted forceps delivery was due to infection with *Staphylococcus pyogenes aureus*, a very dangerous organism extremely difficult to combat.

(b) *Ultimate.*—I have made many inquiries with regard to the after-history of these cases, and have investigated the uterine scar in about 66 repeat cases. In none which have been treated after the method I have indicated have I found any weakness. Often the scar is imperceptible. I see no reason to discard catgut, which I have found quite reliable. In one case, where the operation had been performed for uraemic convulsions, the patient died subsequently with a ruptured uterus; but in this case, owing to a mistake, a bougie induction had unfortunately been performed. A certain number of cases have since passed through a normal labour or forceps delivery safely. Intestinal adhesions do not appear to have given rise to much trouble, but I have myself operated on one case of intestinal obstruction following a suspect Caesarean section after attempted forceps delivery. If the drainage tube is removed early there does not appear to be an excessive risk of hernia.

In conclusion, I think that these statistics show that craniotomy on the living child is an indefensible operation, as a Caesarean section on the above lines involves no extra risk to the mother and gives the expectation of a living child. For central placenta prævia the results for mother and child are so good that it would be well if cases of antepartum haemorrhage were sent into institutions where surgical measures could be undertaken satisfactorily at the earliest possible moment.

My best thanks are due to my house-surgeons and ward-sisters, whose help in the care of these patients has been invaluable, and to Dr. Hilda Cantrell, who has investigated the records.

SARCOMA OF THE SMALL INTESTINE.

BY

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SARCOMA of the small intestine is, of course, a rarity and a clinical curiosity. The object of this paper is to give a brief outline of the subject and to place three cases on record. The literature is very extensive; it is also very dull, being made up of about 200 cases in all. These mostly appear as one-case records, and the notes have a monotonous similarity without broad generalizations. There is a very large transatlantic literature.

Among the very scanty facts which emerge as to the etiology we note a single recorded case in which trauma appeared to be the actual excitant. In another case the disease was found at the site of a tuberculous lesion. In a third case the immediate antecedent to the disease was typhoid fever. Males are affected twice as frequently as females, and the heaviest incidence of the disease falls in early adult life. There are, however, cases on record in every decade of life up to the ninth. The sarcomatous tumour is found most frequently about midway along the small intestine. Either way from this point its incidence lessens. Histologically round-celled sarcoma, lympho-sarcoma, and spindle-celled sarcoma occur with about equal frequency, but there is an example of almost every sort of sarcoma on record. The tendency to glandular invasion and metastatic dissemination is slight. The prognosis does not seem to vary much with either the site or the histology, but it does vary according to the gross morbid anatomy. The morbid anatomy admits of clear classification, thus:

1. The tumour may be a small polypoid mass projecting into the lumen of the gut.
2. There may be an extensive tubular or cuff-like infiltration of the bowel wall.
3. A growth may dangle as a pedunculated mass from the peritoneal surface of the gut.

The symptomatology likewise varies according to the morbid anatomy, but before proceeding to a description

of this certain symptoms common to all three types must be enumerated. These common symptoms are: (a) Precocious cachexia. (b) Heavy toxic and septic absorption with associated anaemia and fever. The fever would seem to be especially noteworthy in children, and the diagnostic difficulties are increased thereby. (c) Alternating constipation and diarrhoea, with malaena often. Vague abdominal discomfort and colic.

THE THREE CLINICAL TYPES OF THE DISEASE.

1. *The Sarcoma may Project into the Lumen of the Gut as a Small Polypoid Mass.*

This type would seem to be the most common, and also the one in which the prognosis is least grave. A minute account of such a case was given by Maxwell Telling in which a child of 3½ years complained of symptoms progressively increasing in severity and incidence over several months. The signs and symptoms closely resembled chronic intussusception, but not entirely. At operation a knuckle of small intestine containing an oval button-like mass encroaching into the lumen of the gut was removed. The little mass was found to be a spindle-celled sarcoma. Eight years later the patient was alive and well.

Almost invariably, however, in this type the illness passes through a phase lasting several months in which the general symptoms of cachexia, colic, and fever persist and progress, with a culmination in acute intestinal obstruction due to the polypoid mass precipitating an intussusception.

2. *The Growth may take the Form of a Tubular or Cuff-like Infiltration of the Bowel Wall.*

Here again the general symptoms persist and progress for weeks or months. An acute stage may be reached in several ways. Most commonly an abdominal tumour is discovered; this is taken to be an appendix abscess, or a twisted ovarian cyst, or a hydronephrosis, or a gastric carcinoma. Less commonly subacute intestinal obstruction, erroneously ascribed to a colon growth, takes place. Least commonly a general peritonitis is caused either by necrotic changes in the cuff-like mass or by actual perforation.

3. *The Growth may dangle as a Pedunculated Mass from the Peritoneal Surface of the Gut.*

This is the rarest type and the most grave. As in Type 2, the general symptoms progress till an acute illness

supervenes, due either to changes in the tumour itself, or to its increasing bulk, or, most rarely of all, to an acute torsion of a coil of small intestine caused by the freely dangling mass on its surface.

CASE RECORDS.

Case 1.

B. A. was admitted in 1913 for acute intestinal obstruction. A large tumour was found involving the small intestine about 18 inches below the duodeno-jejunal junction. The mass was adherent to the large bowel, but it was freed without much difficulty, and the whole mass, with the adjacent glands and about two feet of intestine, was resected. A lateral anastomosis was done. The naked-eye appearance of the specimen suggested a primary glandular condition with adhesion to and ulceration into the small intestine. A portion of the mass abutting into the lumen showed histological structure of a sarcoma with an extraordinary infiltration of eosinophil cells.

The patient was quite well for eleven years. In 1925 she was again admitted for colic, abdominal pain, and vomiting of several months' duration. At operation an annular cuff-like growth was found high up in the small intestine. This was resected, together with the adjacent glands. Histologically it showed a sarcomatous structure identical with the tumour removed in 1913. In 1928 the patient reported herself quite well.

Case 2.

The patient complained of general abdominal colic, nausea, irregular constipation and diarrhoea, and abdominal distension for about six weeks. At operation a mass resembling a sloughing cyst was found attached to the small intestine about one foot from the duodeno-jejunal junction. A wide resection and a lateral

anastomosis was performed. Histologically the mass proved to be a spindle-celled sarcoma. One year after the operation the patient reported himself as quite well.

Case 3.

This patient was admitted on account of acute intestinal obstruction of very sudden onset. No definite antecedent illness could be ascertained apart from two attacks of diarrhoea within the last few months. When first seen his condition was very poor, but it was decided to give him the chance of laparotomy. A small intestinal tumour was seen, but all that could be done was an ileostomy.

At the post-mortem examination the small intestine distension was found to be relieved, but an early acute general peritonitis was the cause of death. About eight feet from the ileo-caecal valve a rhomboidal fleshy mass was found adherent to the small intestine. It dangled from a small base and a pedicle containing some large veins. In bulk it measured about 2 in. by 1½ in. by 1 in. Fig. 1 shows the mounted specimen. It had caused acute intestinal obstruction by bringing about torsion of the coil to which it was attached, as shown in the photograph (Fig. 2). Histologically the structure was leiomyosarcoma.

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EPITHELIOMA, ERYTHEMA INDURATUM (?), AND ULTRA-VIOLET RADIATION.

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At the discussion on ultra-violet radiation in dermatology which took place at the Annual Meeting of the British Medical Association held in Edinburgh in July, 1927, the question was raised as to whether there was a risk of carcinoma after ultra-violet radiation comparable to that following upon excessive x-ray therapy. Some considerable time obviously would have to elapse to prove this, and more than a few isolated cases would be required to be of any positive value, as there must be few if any dermatologists who have not seen epithelioma develop on the cicatrices of lupus vulgaris where no physical agent of any description whatsoever—x rays, for instance—had been employed. Such cases are relatively infrequent, but their occurrence is generally admitted, and requires to be kept in mind when endeavouring to arrive at the cause of cicatricial malignant degeneration in any given case.

A somewhat arresting case from the point of view of malignant development occurred comparatively recently in my clinic.

About the beginning of 1926 a male adult patient, the subject of extensive facial lupus vulgaris, who had been treated by a colleague in England with ultra-violet rays, came under my care in hospital, on the latter's recommendation, for further ultra-

violet treatment. The patient was submitted to carbon arc light treatment. In the summer of that year a suspicious lesion developed on the left cheek. I discussed with a surgical colleague the possibility of malignancy, and a subsequent biopsy showed the growth to be of epitheliomatous nature. Arrangements were made for its excision, but the patient disappeared and nothing more has since been seen of him. More than once I inquired if he had been treated at any time with x rays, but invariably got a negative answer, nor can I recall any evidence whatsoever in the shape of pigmentation, telangiectases, or atrophic scarring that would suggest excessive x-ray therapy. I could do no other than conclude his statement was accurate.

Exposure to sun rays is included amongst the possible factors in the causation of epitheliomata, and the same may be said of the etiology of xeroderma pigmentosum. It would appear, however, that this factor would require the associated one of abnormal vulnerability of the skin of affected persons, otherwise these diseases would be more frequent in countries where sunshine is a constant feature, and I am not aware that such is the case. The sometimes familial character of xeroderma pigmentosum would also support this contention. Again, as previously stated, epithelioma may develop on lupus vulgaris where no physical therapeutic agents have been applied. The question naturally arises, Was this epitheliomatous development due to ultra-violet radiation or was it merely coincidental?—a problem obviously offering some difficulty of solution. It might be said, however, that the causation was at least as likely to be independent of treatment as due to it. The patient was of somewhat obstinate temperament, and the regrettable feature of the case was his disappearance—I understand he went to sea—after it had been arranged to excise the lesion.

FIG. 1.—Case 3. Section through gut and tumour.

FIG. 2.—Case 3.