After-history.

The patient rallied well from the operation, repeated saline injections into the bowel being administered. There was an action of the bowels on November 29th, at 10 a.m., after injection, and the pain was greatly diminished. The temperature rose to 102° F. shortly after the operation; the pulse remained at or about 130. The tongue was for several days dry and red, and the patient continued very restless and irritable, and slept badly. There was no further vomiting. Small quantities of milk and water were administered by the mouth after the second day, and gradually the unfavourable symptoms subsided. On December 6th alternate stitches were removed, and on December 7th, as he continued restless and crying for his friends, he was allowed to go home. After that his progress was uninterrupted.

Description of Parts Removed.

On examination of the specimen, the neck of the intussusception was found to be very tightly constricted, the cause being a puckered indurated growth, rather larger than a shilling, situated laterally in the wall of the small intestine just beyond the neck of the intussusception, effectually preventing any attempt at reduction. The total length of the gut resected was about 18 in. when unravelled.

On microscopic examination the growth proved to be (according to the report of the Clinical Research Association) a large round-celled sarcoma. The report reads as follows: "The mass is a malignant new growth invading the muscle coat of the intestine. It is composed of large round cells in a delicate stroma with very thin-walled vessels. We conclude that it is a round-celled sarcoma."

The mesenteric lymphatic glands were too deeply placed to remove *in toto*, considering the serious condition of the patient, which precluded any lengthy operative procedures. Added to this they had all the appearances of being tuberculous, and malignancy was unsuspected; nor was the

Diagrammatic representation of intussusception and growth. A, Neck of intussusception; B, growth in wall of intussusception; C, intussusciens; D, apex of intussusception; E, enlarged mesenteric lymphatic glands; F, mesentery.

growth discovered until subsequent examination of the resected intussusception; this alone prevented easy reduction, as the condition of the gut wall was merely that of congestion.

The patient is at the present time in fairly good health, though a resistance can be felt in the situation of the mesenteric glands, and his recovery has not been quite as perfect as one would expect in an ordinary case. His digestive functions remain good, but the ultimate prognosis one must consider very grave.

A NOTE UPON THE EMBRYOLOGICAL AND PATHOLOGICAL SIGNIFICANCE OF CERTAIN FOLDS IN THE ANAL CANAL.

By J. BERNARD DAWSON, M.B., B.S., F.R.C.S.,
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In a recent paper Dr. Arthur Keith, discussing the development of the proctodaeum, stated that—

In two cases, both females, the epithelium of the proctodaeum had budded out irregularly, so as to form diverticula, some of which projected for some distance into the perineal tissue, and undoubtedly correspond to certain diverticula which are found in the anal canal opening under the folds which join together the upper ends of the columns of Morgagni.

He is good enough to attribute to me the credit of pointing out these said diverticula.¹ I, however, have to thank Mr. F. C. Wallis, of Charing Cross Hospital, for having directed

my attention to the existence of these strange test-tube-like projections.² He attributes certain cases of rectal discomfort to the fact that these valvular folds uniting the upper end of the columns of Morgagni and the diverticula become inflamed and painful, the sinus doubtless acting as an efficient culture chamber for micro-organisms.

Mr. Keith was good enough to permit me to carry out some research work upon the subject in his laboratory.

Morgagni's original description of the anal canal gave little or no help. The most complete description of the anal canal is to be found in *Traité d'Anatomie Humaine* of J. J. Moleschott and Charpey. Of the columns of Morgagni they say:

They have a triangular base below, which inclines to either side and is continued into the free border of the valves of Morgagni. The summit tapers off, and is lost in the rectal mucous membrane.

There is, therefore, no mention of any folds uniting the summit of the columns.

My work, under Mr. Keith's supervision, consisted of cutting sagittal sections through the pelves of some six fetuses of ages varying from 2 months to full time. Without exception, in every specimen the columns of Morgagni were united by folds of mucous membrane both above and below. In other words, the anal canal was surrounded by a series of depressions which were bounded above and below by valve-like flaps of mucosa and on either side by elevated ridges, which were the columns of Morgagni. One series of sections from a hydrocephalic female fetus of 6 months seemed to offer some clue to the solution of the problem. In this I was fortunate enough to find a distinct

Fig. 1.—A, Rectum; B, anal canal; C, remnant of proctodaeal membranes; D, vagina; E, bladder; F, cavity of uterus; G, peritoneum; H, os pubis; J, ext. sphincter. Dotted lines indicate portion from which sections were cut.

remnant of the proctodaeal membrane; 6 mm. from the skin margin was a perforate septum across the lumen of the anal canal forming a circular shelf, of varying width, around the bowel; it was clearly an imperfect proctodaeal membrane, which had persisted in a fetus that, save for the hydrocephaly, was perfect.

Had the septum been complete the condition would have been one of imperforate anus, in which the rectum ended blindly at the site of a fully-developed proctodaeum.

Below this imperfect rectal septum the anal canal was perfect, the columns and lower valves of Morgagni being well developed, the upper ends of the columns, however, disappearing under the membranous remnant. On microscopic examination it was seen that above the mucosa of the rectum was of the usual type, below the stratified epithelium of the anal canal is found. The septal shelf itself had different coverings above and below—the upper or rectal surface being clothed with the usual columnar rectal mucous membrane, exhibiting crypts and goblet cells, whilst the under or anal surface was covered with stratified epithelium. Between these two epithelia was fibrous tissue with a few muscular fibres, but no definite offspring from the regular muscle coats of the rectum. The circular muscular fibres of the rectum were aggregated to form the internal sphincter exactly at the level of the imperfect septum; below the circular muscular coat was continued, between the external sphincter and the anal submucosa, to the skin margin.

This fact is not easy to explain, for it is not easy to see why the internal muscular coat, a derivative of the splanchnic layer of the mesoblast, should come to occupy a position between epiblastic epithelium and the external

sphincter which is derived from the somatic layers of mesoblast. This downward continuation of the internal muscular coat of the rectum was present not only in my own sections, but also in some twenty sections lent me by Mr. Wood Jones. The longitudinal muscular coat and the external sphincter showed no variation from the usual description. One section showed that the depressions between the columns of Morgagni continued under the rectal shelf for some distance into the submucosa of the rectal wall, these diverticula being lined with stratified epithelium.

The conclusions which I have drawn from the above are as follows:

1. That there are commonly valve-like folds uniting the upper ends of the columns of Morgagni.
2. That these folds seem to represent remnants of the embryonic proctodaeal membrane.
3. That the epithelium of the proctodaeum may be prolonged upwards, under these valves, into the rectal submucosa, and that these prolongations may persist as diverticula in the adult.
4. That where such diverticula are present it is an indication that the merging into one of rectum and proctodaeum has been imperfect to a greater or lesser extent.

The vertical measurement of the columns of Morgagni is marked by considerable variation, from 5 to 15 mm. being the average. It is known that the depth of the proctodaeum varies in like manner, so that it is reasonable to take the vertical measurement of the columns as some indication of the depth to which the proctodaeal

Fig. 2.—A, Rectal mucous membrane. B, Stratified epithelium of anal canal. C, Ingrowth of epithelium from proctodaeum. D, Remnant of proctodaeal membrane. E, Longitudinal muscular coat. F, Circular muscular coat with internal sphincter. G, External sphincter.

depression extended before it became continuous with the rectum.

The Pathological Significance of these upper valves and the sinuses beneath consists in:

1. The occurrence of inflammation in and around them produces symptoms of painful defaecation.
2. The possible part they may play in the formation of submucous fistula.
3. The possibility that the occurrence of inflammatory mischief at a spot where there is partially buried epithelium may originate carcinoma of the squamous variety, such as is found in the anal canal.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, December 12th, 1908, p. 1741. ² *Lancet*, January 9th, 1909.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF "PORT WINE" STAIN.

I READ in the BRITISH MEDICAL JOURNAL of February 6th, in the paper on radium, by Sir Frederick Treves, the following:

It can cure "port wine" stain, and I would ask surgeons at the present day what measure they have available of which they can say the same.

In answer to this I would say that, in my opinion, the most successful method of treating such at the present day is by the *x* rays. It is five years since I first used this method for a "port wine" stain involving almost the half of the

face. The patient was shown at a meeting of the Glasgow Northern Medical Society. The result was extremely good, and was produced without noticeable scar. Since then I have been using the same method in other similar cases, and have found no method equal to it.

Glasgow.

JOHN DONALD.

RADIUM IN LUPUS ERYTHEMATOSUS.

THE great interest which has been aroused by the treatment of lupus erythematosus by radium has induced me to send you photographs and brief particulars of a case in which that remedy has been successfully used.

D. M., a girl aged 11 years, with tuberculous history on mother's side, was attacked by lupus on the bridge of the

Fig. 1.

nose in September, 1906. After undergoing treatment elsewhere, she came as an out-patient to the Chesterfield and North Derbyshire Hospital, and the *x* rays were applied. The disease was arrested, and eventually the part healed, with some loss of substance and consequent disfigurement. Whilst the nose was being treated, a second outbreak of the disease commenced a little to the inner side of the left leg, below the patella (Fig. 1). The *x*-ray treatment was applied, but this time unsuccessfully, and, as the disease was spreading, it was thought advisable to send the patient to one of the London hospitals for the Finsen light treatment. As she would have had to wait a considerable time before admission, and the disease was rapidly increasing, I decided to try the effect of radium bromide, placed on a small disc and covered with mica. The ulcerated surface was covered with thin oiled silk, and the disc was moved slowly over the surface from twenty to thirty minutes, once or twice a week, as was thought requisite. The treatment was continued for a lengthened period, with the result as shown in the photograph.

Fig. 2.

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MAMMARY CANCER RECURRING FOURTEEN YEARS AFTER OPERATION.

AFTER the address of Sir Hector C. Cameron, published in the JOURNAL of March 6th, the following notes of a case may be worth recording. In 1892 I persuaded a patient to go to the Royal Infirmary, Edinburgh, for operation. The left breast and all the lymph glands were