or an insignificant pouch. If the process of its involution is carried still further, it is supposed that an annular constriction or an actual occlusion of the bowel may take place. And there are some cases in which a fibrous cord or a polypus re-

Fig. 1.—A, appendix vermiformis; B, duodenum; C, colon; D, and E, empty and flaccid gut below stricture; F, stricture; G, hypertrophied and congested gut above stricture; H, rectum.

main attached to the seat of stricture, which bear out this theory; but in cases where such an appendix does not exist as in the above case, and still more so in the cases where the stricture is multiple, we have no knowledge of its causation.

REFERENCES.

- ¹ Treves's *Intestinal Obstruction*. ² Hudson, *Pathological Society's Transactions*, 1899, p. 99.

NOTES ON THE ANATOMY AND SURGERY OF MECKEL'S DIVERTICULUM.

By GEORGE A. CLARKSON, F.R.C.S.ENG.,
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OF all the foetal relics which are only occasionally found in the human body there is none, I suppose, with which we are more familiar than with Meckel's diverticulum. Its anatomy, like that of other functionless and useless relics, is subject to considerable variation. Representing as it does the vitello-intestinal duct, which in the early days of development connects the yolk sac to the bowel, in an ordinary way it undergoes complete and absolute atrophy, no trace of it remaining at all.

When atrophy, however, does not occur or is only partial, we may find one of the following conditions:

1. The duct may remain patent throughout its whole length. I had the opportunity of seeing a few years ago an infant in whom this condition was present. There was a small opening at the umbilicus leading into a distinct canal, down which a probe could be easily passed, and which occasionally discharged faecal material.

2. The portion near the intestine may persist, the other part either disappearing entirely or being represented by a fibrous cord extending from the apex of the diverticulum to the umbilicus.

3. The duct may be entirely converted into a fibrous cord attached to the intestine at that point from which it would originally rise.

The anatomy of the diverticulum is of some interest. Statistics show that it occurs in rather over 2 per cent. of all bodies examined, and it is said that it occurs rather more frequently in males than females. It is usually found within the last three feet of the ileum, but the exact position varies within wide limits. It is rare to find it more than 10 feet from the caecum, but 7 cases have been recorded where it arose from the duodenum, and more than twice that number from the jejunum. I have myself reported an instance of a well-developed diverticulum arising from the jejunum 2 feet from the pylorus.¹

The usual length is from 1 to 3 inches, and its origin is most often from that side of the intestine away from the mesentery. Rarely it springs from the mesenteric side, and may then lie between the layers of the mesentery. A process of the mesentery in some cases passes on to it; in others its vascular supply is derived from branches of the vessels supplying that portion of gut which it joins. Its structure resembles that of the adjoining bowel, but its coats are apt to be rather thinner. The size of the opening of the diverticulum into the bowel necessarily varies considerably. Where the communication is small or valvular, the formation of a faecal concretion is favoured. Foreign bodies have been known to lodge in the diverticulum and there cause ulceration.

Surgically the important point is with regard to the fibrous cord, the outer extremity of which may be attached to the umbilicus or to the abdominal wall below it. Generally, owing to the mobility of the ileum, it undergoes stretching and thinning till it breaks, the umbilical portion completely disappearing. The proximal portion is then peculiarly apt to form some fresh attachment, to one of the viscera it may be, to another portion of intestine, or to the mesentery. It is these adhesions that constitute the danger from the diverticulum. They are a fertile source of internal strangulation if they be present.

That strangulation from a Meckel's diverticulum is not a particularly rare occurrence is obvious from the fact that most surgeons of experience have come across cases, and that cases of it are not infrequently reported. In dealing with a case of internal strangulation from this cause it is important to ascertain whether a pervious tube or a simple fibrous band is being dealt with.

REFERENCE.

- ¹ *Journal of Anatomy and Physiology*, vol. xxvi.

THE LETTSOMIAN LECTURES

ON

DISEASES AND DISORDERS OF THE HEART AND ARTERIES IN MIDDLE AND ADVANCED LIFE.*

Delivered before the Medical Society of London.

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Hospital for Consumption, Brompton.

LECTURE II.

DIAGNOSIS AND PATHOLOGY.

As I have already pointed out, the causes of cardio-vascular disease in the second half of life are very often, indeed usually, complex. It follows therefore that if we desire, as we do most particularly, to discover the effects of each pathogenetic influence as distinguished from the others, we must begin our study with the simplest, or purest, or most definite of all, and proceed from it towards those which are more difficult, as well as to combinations of causes. It is easy to adopt this method in our present inquiry.

TOBACCO HEART.

We have in tobacco a single distinct influence at work—one that is universally acknowledged to affect the heart and vessels, and the physiological action of which is understood; one, further, that can be removed, perhaps not without some

* A few passages are omitted from the text of the lecture as delivered.