

presents indurated edges which have lost the clean cut, sharply-defined appearance of the acute ulcer.

Ulcers may vary greatly in depth, from the merest superficial erosion to those which spare only the peritoneal layer, or effect a complete perforation of the viscus.

In about 20 per cent. of all the cases there are more than one ulcer. With regard to location they may be divided thus: 37 per cent. on the lesser curvature; 30 per cent. on the posterior wall; 12 per cent. on the pylorus; 9 per cent. on the anterior wall; 6 per cent. at the cardiac end; and 7 per cent. on the fundus and greater curvature. About 5 per cent. of all adults show, by autopsy, to have had gastric ulceration.

#### IV. COURSE AND SEQUELS.

The course of gastric ulcer is very varied, from the most acute to the very chronic types. Statistics show that about 75 per cent. of all the cases recover. The actual death rate has been variously estimated by different writers. Leube admits a death rate of 25 per cent.; Lebert, 10 per cent.; Welch, 15 per cent.; Fenwick, 20 per cent.; and Bulstrode, 18 per cent. Hæmorrhage causes death in from 3 to 5 per cent. of the cases, and perforation in from 6 to 10 per cent., according to the investigator.

Apart from hæmorrhage and perforation, gastric ulcer may give rise to a number of very serious sequels, such as cicatricial stenosis of the pylorus, hour-glass contraction of the stomach, the occurrence of cancer on the site of ulcer, the formation of chronic abscess, and the development of a progressive form of anæmia. It is not known how often these sequels follow ulceration of the stomach. In the case of cancer, however, considerable thought has been given to the subject; and with the result that cancer is found to occur generally in the same parts of the stomach as do ulcers. In very many of the cases of cancer of the stomach, there is the history of a precancerous period, which most clinicians regard as indicating the presence of an ulcer. Some writers, particularly Talma, contend that at least 13 per cent. of the cases of ulceration of the stomach become malignant. Chronic deep ulcers in the posterior aspect of the stomach may form adhesions prior to the occurrence of perforation, and thus give rise to an abscess, the usual subphrenic variety. Such adhesions may form when the ulcer is otherwise located than on the posterior wall, though very much less frequently.

Stenosis of the pylorus and hour-glass contraction of the stomach are among the most common and troublesome of the sequels of ulceration. The pylorus, though not actually involved in the diseased process,