THE NORMAL ILEO-CECAL VALVE

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The roentgenological study of the ileo-cecal region has been the subject of interest to several investigators. An excellent basic contribution to the knowledge of the ileo-cecal valve was made by Fleischner and Bernstein (1) and thus far no other studies have thrown better light along those fundamental anatomical lines. Hinkel (2) has drawn attention toward evaluating the variations in the roentgenological appearance of the ileo-cecal valve as observed in the barium enema studies of the colon and warned against urging unnecessary surgical exploration in the presence of a conspicuous filling defect in this region.

Hinkel's studies were performed by means of the barium clysma. We have approached this subject by attempting to correlate the appearance obtained by barium enema with that noted by means of the oral administration of barium. In turn, roentgenograms of the barium filled anatomical specimens were compared with the clinical roentgenograms. In the individual ambiguous case the combined study by barium enema and the oral administration of barium has been the decisive factor in final evaluation.

This entire subject deserves special emphasis in order to assist the clinician to recognize the manifold varia-

Fig. 1a. Normal appearance of the medially inserted ileo-cecal valve as seen in the barium enema examination. Note both lips and the linear frenular defect extending laterally.

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Fig. 1b. Specimen roentgenogram showing an identical picture.

Fig. 1c. Same specimen rotated 90 degrees.
The normal ileocecal valve must be stressed, that just as in the pyloro-duodenal region, normalcy is not a fixed static picture. A knowledge of the morphological variability of the ileocecal region is helpful not only in the recognition of the normal from the abnormal, but also in classifying the abnormal status, when it is present.

The ileocecal valve fulfills its function by means of its structural anatomy as well as a physiological sphincteric mechanism. The sphincteric action is innervated from the 9th to 12th thoracic nerves, and the 1st and 2nd lumbar segments of the splanchnic nerve, mediated through the intramural plexus of Auerbach. The frequency of contraction varies in normal individuals in the periods of contraction and relaxation. Various physiological states influence the tonus of the valve.

The anatomical structure affords an actual valvular action. There is a sudden anatomical transition with the small calibred ileum becoming the large calibred cecum. There is a corresponding change in the mucosa, in accordance with the abrupt physiological change from absorption to storage and excretion. Likewise the muscular anatomy changes suddenly adapting itself to the need of an actual valvular mechanism. As the lower end of the ileum enters the cecum obliquely, the invaginated portion of the cecal wall forms two transverse folds or lips, one above the other, with a central slit-like opening. The lips fuse laterally to produce a crescentic fold on either side of the ileocecal orifice called the frenula of the valve, which are continued around the interior of the cecum (Fig. I-IV). Lasser and Rigler (3) in