AN UPDATED REVIEW OF

SURGICAL TREATMENT OF RECTAL PROLAPSE IN ADULTS

AN ESSAY

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GENERAL SURGERY

BY

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INTRODUCTION

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Rectal prolapse is still a matter of interest for discussion and research. An ideal single operation that can be applied to all cases does not exist. The cause may be the continued uncertainty of the exact physiologic defect that allow procidentia of the rectum [Dunphy, 1987].
According to Tuttle's classification, prolapsed rectum may be: a) Partial (incomplete or mucosal), b)complete which may be of three degrees according to the part of the rectal wall descended down into the anal hiatus (Nesslord, 1976).

The suggestion of Maschowitz (1912) of prolapse as a hernia is based upon the presence of a defect in one or more factors of the supporting structures of the anorectum. Beside the rectal protrusion, there may be partial or complete faecal incontinence with or without bleeding and discharge (Matheson, 1981; Dunphy, 1987).

Keighley suggested that the prolapse is a form of bowel intussusception and is not due to a weakness of the pelvic floor (Keighley et al., 1985).
Internal intussusception represents the precursor of complete prolapse. It represents an early stage of the

disease occurring internally before it becomes visible, so the diagnosis is frequently missed (Theuerkauf et al.,1986). Many patients presenting with rectal prolapse are old and infirm, so most surgeons favour low morbidity by local operations on the anal canal (Goligher, 1984).

The local procedure include the Thiersch wire, or a silastic sling around the anal canal. Some advocate radical operations such as recto sigmoidectomy or combined abdomino-perineal and pelvic floor repair. These is usually for fit patients (Porter, 1962; Goligher, 1984).

Some of these operations may have a high recurrence rate as well as high morbidity and mortality rates (Keighley et al., 1983).

CHAPTER I

ANATOMY

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Developmental study:- (Fig 1,2)

By the end of the third weak of pregnancy a head fold is formed at the cranial end and a tail fold is formed at the caudal end of the embryo. at the same time a right and left lateral body fold folds develop and the extension of these folds gradually constricts off the embryo from the yolk sac giving it its characteristic shape (Warwick; Williams, 1978). The portion of the yolk sac found in the cranial fold in the ventral aspect of the pericardium will form the for gut which will be later connected with the mid gut. Also the recess of yolk sac included in the tail fold will form the hind gut.

As the tail fold begins to be formed the ectoderm and the endoderm came in contact forming the cloacal membrane (Brouer,1957; Warwick & Williams,1978). The cloacal membrane progressively comes to lie in the ventral aspect (wall) of the hind gut and the dorsal aspect of the connecting stalk. As the hindgut is the part between the yolk sac and the origin of the allantois, the segment of the hind gut caudal to the allantois dilates and is called the endodermal cloaca.

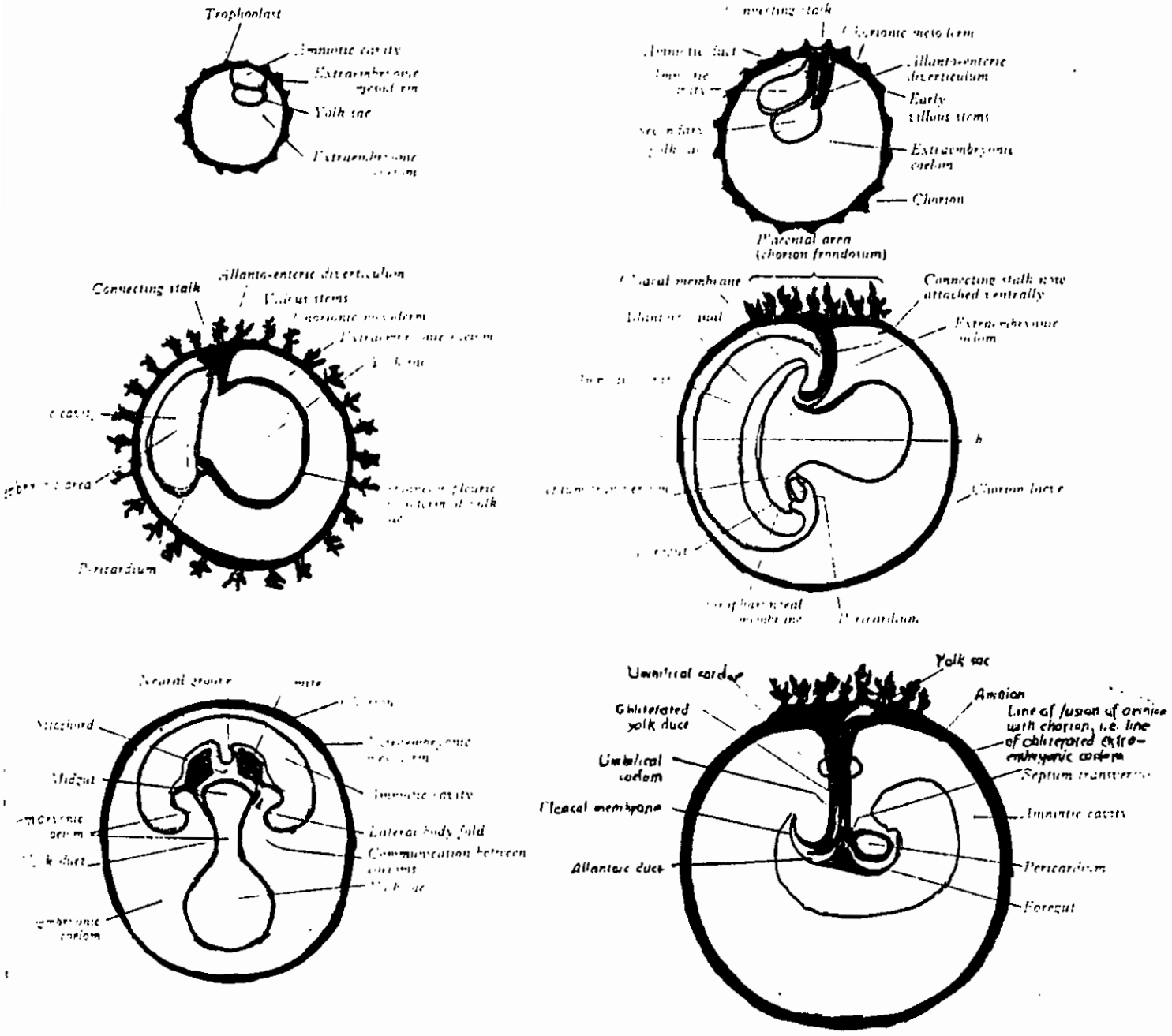

Fig. (1): Early developmental stages of the embryo, shows the development of the gut.
(Warwick & Williams, Gray's Anatomy, 1978).

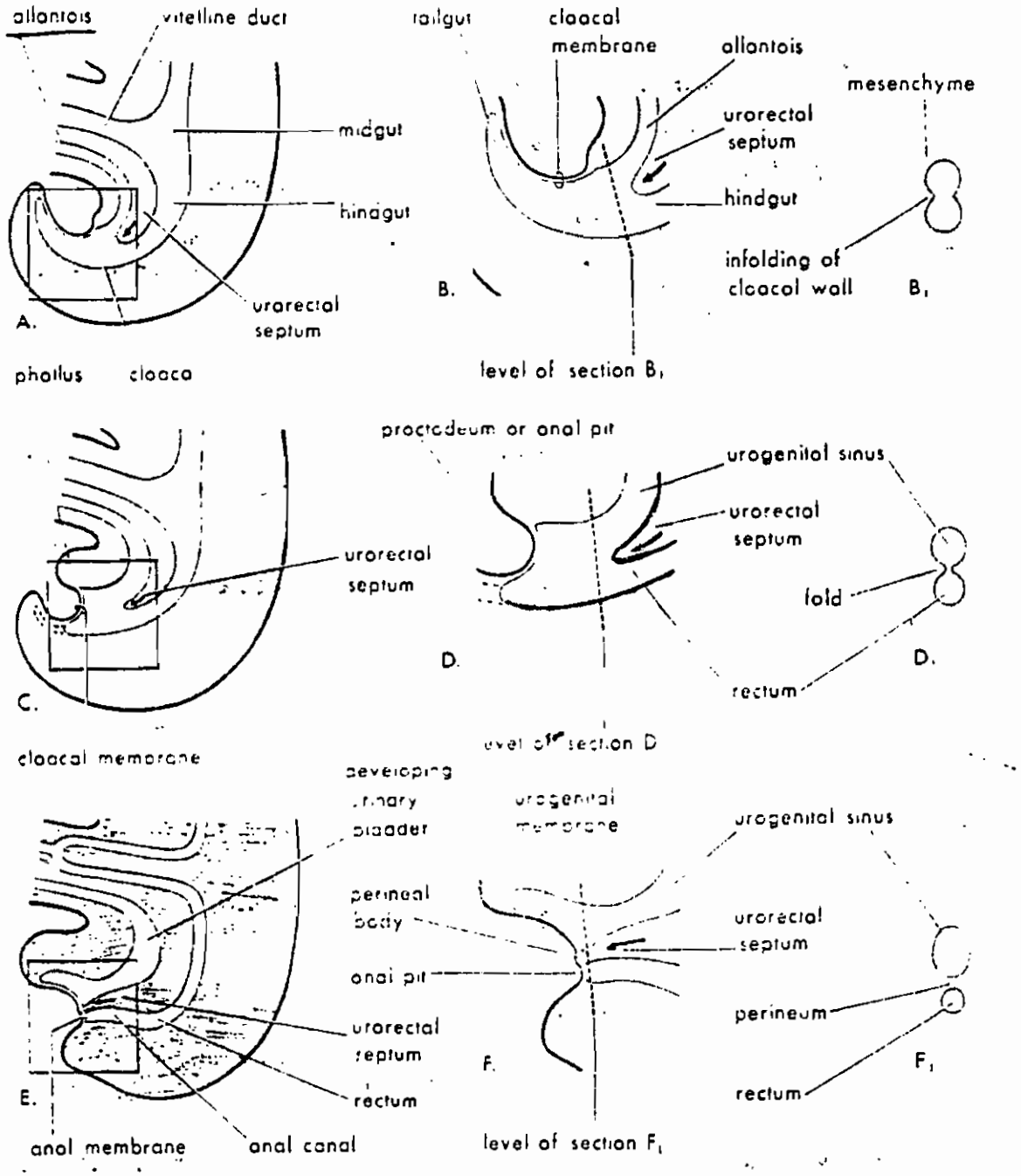

Fig. (2): Drawings illustrating successive stages in the partitioning of the cloaca into the rectum and urogenital sinus by the urorectal septum. A,C and E, views from the left side at 4,6 and 7 weeks, respectively. B,D and F are enlargements of the cloacal region. B_1,D_1 and F_1 are transverse sections through the cloaca at the levels shown in B,D and F. Langman.J.: Medical Embryology; Human Development-Normal and Abnormal. 2 nd Ed. Baltimore. The Williams & Wilkins Co. 1969.

Its ventral wall is called the cloacal membrane which comes to lie at the bottom of a shallow depression made by the growth of the surrounding mesoderm. This depression called the ectodermal cloaca. The endodermal cloaca, formed by the 5th week) will receive the hind gut and the allantois as well as the meso-nephric ducts.

The uro-rectal septum formed by the mesenchymal tissue grows caudally dividing the endodermal cloaca into an anal portion and a urogenital sinus. The anal portion ends by the anal membrane which lies in a depression (proctodeum) this membrane has an upper endodermal lining and a lower ectodermal one. When the anal membrane raptures the anal canal communicates with exterior (Fig. 2) (Stephens, 1958; Warwick & Williams, 1978).

The site of the anal membrane is marked by the pectinate line while anal valves represent its remains (Last, 1990).

Gross anatomy:-

The rectum starts at the rectosigmoid junction at the level of the 3rd sacral piece and ends at the ano-rectal junction which lies at the pelvic floor one inch in front and below the tip of the coccyx (1½ inch above the cutaneous

margin of the anus).The recto-sigmoid junction may be marked by the distinct flexure at the terminal sigmoid colon. The flexure of sigmoid colon is directed backward and upwards, then it turns sharply downward to follow the curve of the sacrum and becoming the rectum. This angulation is absent in cases of too short recto sigmoid colon. No sphincter exist at the recto sigmoid junction (Last, 1990).

The rectum ends 2.3 cm in front and below the tip of the coccyx as mentioned above by turning abruptly down word and back words to pass through the levator muscles (Goligher, 1984).

In the anorectal junction the muscle coats of the rectum are replaced by the sphincters of the anal canal (Last, 1990).

The rectum shows three slight lateral curves or flexures which are most prominent with distended viscus. They are upper and lower convex to the right and a middle one convex to the left. The lowest part is slightly dilated forming what's called rectal ampulla. Corresponding to the three sickle shaped curves seen externally there are three sickle shaped transverse rectal folds, formerly called

rectal valves (of Houston) that project into the lumen. They are produced by the circular muscle of the wall and are not confined merely to the mucous membrane as in case of circular folds of the small gut. Their purpose is not clear but may be concerned in separation of flatus from the faecal mass by giving shelf like support while allowing flatus to pass (Last, 1990). *Fig(3)*

As the rectum begins to follow the sacral curve it has an antero-posterior curve called (sacral flexure) while the back word bend of the gut at the recto-anal junctions termed the (perneal flexure) (Warwick & Williams, 1978).

It is nice to mention from the above description that the word rectum which means straight is a misnomer in case of man because the rectum is not straight structure while in lower animal it is a straight structure to some extent (Last, 1990).

The intra-peritoneal part of the rectum has a diameter of 4 cm as that of sigmoid colon, but its lower part is dilated and called the rectal ampulla as described above. The rectum has no sacculation, no appendices epiploicae or distinct mesentery while taeniae coli bend 5 cm above the

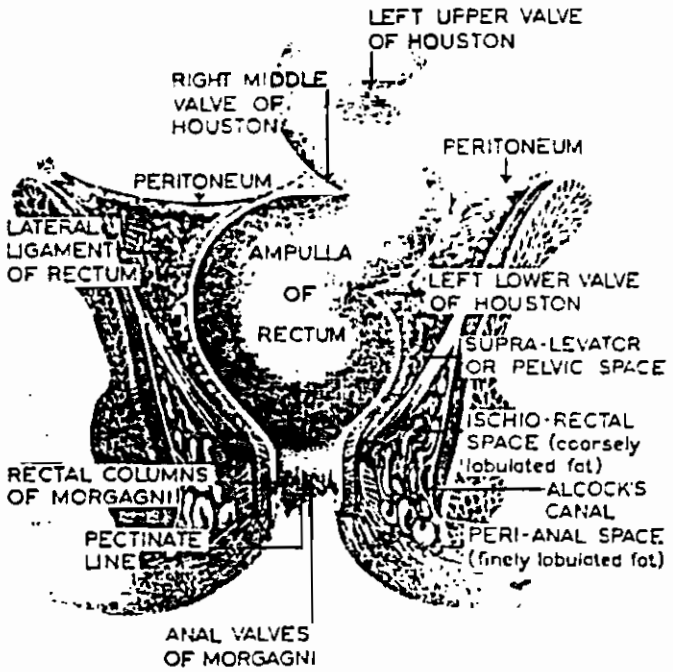

Fig. (3): Diagram of a coronal section of the pelvis and rectum showing the lateral curves and the valves of Houston. (From Goligher, J.C., 1959, in Diseases of the Colon and Ano-rectum, ed. R. Turell. Philadelphia: Saunders).