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Anorectal malformation embryology

Stone HB. Lightning with straight cloaca. (1936) Anne Sorg. 104 (4): 651-61. PMID 17856859 online editor This historical paper 1936 by Stone describes the congenital anomaly of the Kalawakal development. See also Florian J. Early development of man, with a special reference to the development of the mezoderm and the cloacal membrane. (1933) J. Anat. 67 (2): 263-76. PMID 17104422 Modern Notes: cloaca | Cloacal Membrane | Human Unnatural Development Kruepunga N, Hikspos JPM, Mykon Hong Kong, Mommen GMC, Memon K, Weerachayanukul W, Asuvapongpatana S, Eleonore Köhler S & Lamers WH. (2018). The development of cloaca in the human embryo. J. Anat, 233, 724-739. PMID: 30294789 DOI. The subdivision of Cloaca into the genital and straight urinary passages has remained controversial due to differences over the identity and role of the barrier developing between the two sections. This study aims to illustrate the evolution of Cloaca using a quantitative 3D morphological approach in human embryos for 4-10 weeks after fertilization. ... Our main finding was a clear difference in growth between the rapidly expanding central and pentareal parts, and the slowly or not growing parts of the cranial and thalassaemia. The entrance to the Wolveyan Canal in Cluaka proved to be a stable landmark that remained linked to the location of the S3. The pent-down growth in the skull clackofa led to a clear continental migration of the entrance to the Wolffian canal, while the pent-up growth in the dorsal clomac changed the entrance of the inlet from the skull to the back on the Cloaca. Turning this from end to end to intersection from one end to side produced temporary side folds. The continuous difference in growth dorsoventral orthotic fetal dam axis axis and at the same time expanded front-oriented 'urorectal (turino) septum' caudally between the urinary genital parts of the abdomen and dorsal anorectal of cloaca. The dorsofinral growth teams also divided the clonacal membrane into a sophisticated poloral plate and a healthy brazil thin membrane membrane, which ruptured in 6.5 weeks. The expansion of mesenchyme pericloacal follows the difference in growth dorsoventral and produced a tuber of the genitals. Dysregulation dorsal security development is probably an important cause of malformations: very little regressive development may lead to aging, and a lot of regression in stenosis or prevention of the remaining part of the dorsal cloaca. Historical Disclaimer - Information on historical embryology pages, pages in which historical terms (textbooks, papers, persons, recommendations) appear on this site, and sections within the pages where this disclaimer appears, indicate that the content and scientific understanding are limited to the time of publication. This means that while some scientific descriptions are still accurate, the terminology and interpretation of development mechanisms reflect understanding in At the time of original publication and those in previous periods, these terms, explanations and recommendations may not reflect our current scientific understanding. (More? History of embryology | Papers on Embryology) Harvey B. Strong, Ph.D. in Baltimore administration, member of parliament. The various abnormalities in the development of the rectum and the skull are well known to the embryologist and are of interest to the surgeon. In some of them the entire blockage of the intestine exists and requires immediate intervention to save the infant's life. In other cases the rectum is not completely blind, but instead of opening through the anus usually, the fuzzi is absent and the rectum opens in some other hollow fissure. This paper is particularly related with that of the female cases in which the rectum opens inside the vagina. These organs usually communicate or form a common cloaca during a single period of fetal development, but later Hendot becomes separate dissonance from the urinary sinuses by developing the barrier between these two passages, and the moment, opens up to the surface by merging with the rectum that indulges in the inward of the mighty, leading to the formation of a natural anus. Sometimes both of these processes, that is, the separation of the rectum from the vagina and the opening of the rectum in the rectum, fail to occur and the incomplete embryonic state continues. This leads to the condition of the imperforate and rectal fistula or cloaca. Such abnormalities have been known to occur for a long time. Bodenhamer, ' in his interesting study dedicated entirely to congenital malformations of the rectum and shader, cites references dating back to classical antiquity and mentions similar pest records in a dog and cow. However, he states that this is a rare case, and cites all the few cases he can refer to. ' Since its time, there have, of course, been other reported cases, but one is surprised by the lack of discussion of the subject in any of the work consulted. Many text books about surgery have been deleted so or hardly state that such abnormalities exist. Even with the volumes allocated to the rectum and theme is handled, if at all, in a very fast way. This is of course quite appropriate and does not justify the scarcity of the condition for extensive discussion in general thesis. Moreover, as several authorities point out, this particular form of imperforate is prone to be less dangerous than most other varieties because the rectal opening in the posterior vaginal wall is usually of sufficient size to allow sufficient emptying of the intestine, or if 1s are not large enough it may be easy to find and enlarge easily by stretching or incision. Thus, life-threatening obstruction is rare. However, it occurs when the connection is very small and high in the vaginal vault. These conditions may require colostomy to save a child's life and are prone to pairing with a double uterus. One writer has seen Case. Much more commonly the rectum opens in the back vaginal wall down, and indeed it has been said that the most common location of opening is in fourchette. Figure 1- The 1 — The arch section of the imperforate and cloaca rectum. As far as symptoms are concerned are the obvious result of the abnormal location of the rectal opening. The absence of anus or primitive depression such as dimple is external evidence of the condition, along with the escape of the mykonium or stool from the vaginal outlet. There is usually associated incontinence although sometimes there seems to be a force such as a partially effective sphincter in the tissues around the opening of the rectum. In social groups that are neglected or indifferent, it is said that the situation may even escape detection and there are reports of women who have reached adult life and even carrying children, without being aware of their abnormal situation. As a rule, however, these patients suffer from unacceptable results of fecal incontinence and rarely partial obstruction that goes with insufficient rectal slot. They have contamination, skin irritation, constipation, stress, and may develop one form of giant colon. This situation clearly calls for efforts to improve or improve. As much as the author was able to discover, in a fairly broad, but by no means comprehensive research, of literature, there is only one form of process described and used to treat these lesions - that of Rizzoli.2, in this procedure, a back incision in the midline is made through the posterior vaginal wall, four, perineum and skin, from the edge of the rectum fistula to the position usually occupied by the anus. The rectum is separated from the vagina and drawn back through the cleft to its new position where it is sewn onto the skin. The split between the perineum and the back of the vaginal wall is then sewn together in front, in order to reconstruct normal relationships. The results of this type of operation are generally described as good, but in some cases the well-reformed kinship provision has not been corrected and control has been unsatisfactory. The author offers a different kind of technical attack with the same objectives - closing fistula in the vagina, restoring the anus to its correct position and restoring sphincter control. Technic operative. — With snores in the vaginal ventitor to detect rectal fistula, a circular incision is made around this opening, separating the mucous membranes from each other. This incision is deepened around the rectum wall and is dissected upwards around the rectum from all sides until it is freely packaged. As the anterior rectum and back vaginal walls are often very close in touch, careful care is sometimes needed in the dissection to avoid creating a hole in any incus. Packing should be carried out as Possible without opening the peritoneum of the Cool de Bag from Douglas, which should be avoided if possible. After completing this anatomy, the rectum lies free and separated into the space between the vagina in the front and the stagnation behind, while below the presence of muscle leader ani layer continuous across the interstitial floor. The next step is to make a small oval removal of the skin in a position where it should be the anus. Sometimes this will be referred to by the dimple, or the sphincter may be visible under the skin. Often there is no such assistance and the operator chooses location without special guidance. Through the skin wound that is forming the new anus hemostat is pushed directly closed and worked, by sharp dissection, upwards through the fascia and muscles of the levator until it penetrates the free anatomy space around the rectum. The passage through which hemostat is carefully extended and inflated, without splitting muscle fibers, so that the index finger can pass through it. Through this passage the clamp is then inserted upwards of the glee, so one can understand the free end of the packed rectum, which is drawn down and outward to the skin surface of the new anus. To do this properly without stress or strain, the rectum must first have been fully filled high, and the opening is stretched through the lithotome opened to allow the intestines to pass without difficulty. The rectum is now firmly entrenched in its new location with four stitching under the quarter surface of the katg, and the free end of the gut stitching to the skin of the amanwith the cut-off stitching of soft silk. Through this procedure the interbody and muscles in the pelvic floor were kept intact. The fiber closes comfortably around the rectum through which it was pulled, and while the hole in the posterior vaginal wall is still open, some cat stitching may be taken in fibrous and paraplegic structures in front of the rectum in its new position, to increase the construction of a clay body and septum rectoginal. Finally, the hole in the back vaginal wall is closed. Figure 2. - Fill the rectum by dissecting the surrounding structures. The upper insert shows the beginning of an anatomy by separating the rectal nozzle. Low insert shows the drawing of the rectum packed down through an indication to an oval wound in the normal location. The vaginal opening appears here closed by stitches. This method has been used in practical treatment in the three reported cases in this regard. It has produced uniformly good results. The vaginal closure was constant, without leakage. The interbody is large. Opens the rectum in its normal state. Limsor's understanding of the rectum has also allowed him to have excellent control over both gas and feces. Some comments can be made on some points that affect the ease and success of the process. It's better to postpone it until it's puberty. As the structures are then much larger and much more satisfactory handling than very young infants. As mentioned earlier, this is possible as there is usually enough intestinal content to avoid clogged symptoms in this particular form of abnormality, although sometimes it may be necessary to scan the colon. When the specified age is reached, it is very recommended initial treatment for a few days in the hospital before the operation, to empty the intestine completely. After the operation, defecation is avoided if possible for seven to ten days, allowing the wound to strengthen before subjecting it to the passage of feces. The daily administration of opiates has mild effects this. After defecation has begun, the sitz warm baths, twice daily, help in cleansing, healing and comfort of the wound. Before the final chapter, many digital examinations and gentle measures of the new blue and rectum should be carried out, but not before the fourteenth day, in order not to damage the newly ill. A late-case survey, a few months after the operation, to determine the result, correct any tendency to stenosis, 1s desirable. Perineum. Less insertist is an attempt to refer to the muscle relationship of Levator to a new position of the rectum. The top insert shows the same width of Figure 3.—A bow diagram of the completed operation. Case Reports 1-32812, Union Memorial Hospital. L.B., white girl, 13 years old. An anus scan shows imperforate with a small scar, and is said to be due to an attempt to open the intestine by operation shortly after birth. When this failed, the colostomy was performed in the sigmoid, which is still open and functioning. In the posterior vaginal wall, one and a half inches above the hymen, is a small opening marking an abnormal rectal opening. The child is well developed, is fairly old for her age, and very physically and mentally normal. The operation was carried out as described on June 27, 1934. On July 10, 1934, digital was expanded. Convalescence was not successful except for an attack between the current of dermatitis, and the patient came out after three weeks. She returned to the hospital one year later to close her colostomy, which took place on June 26, 1935, successfully and without any accident. The examination at this time showed an excellent result. Normal appearance, good perineum, excellent control of the intestine without smudging. Case 2-33117, Union Memorial Hospital. C.B., 13-year-old white girl. The scan showed a small snooze where it should have been the anus. The rectum opened in the back vaginal wall one inch above the hymen by opening, which was always large enough to allow easy defecation since birth. The child was natural, mentally and physically, well developed and free from complaints, except for incontinence, irritability and rejoicing in the vulva. The operation described was carried out on July 25, 1934. The wounds healed well, and the convalescence was inconus, and the patient was in three weeks. The examination after a few months showed a practically complete restoration of the rectum, anus, circumference of the uterus and vagina to normal with a full rectal continence. Case 3-66891, Johns Hopkins Hospital. M.C., white girl, 10 years old. The baby was born with imperforate anus, opening the rectum through the posterior vaginal wall, low down. There were several other anomalies — an additional thumb on each hand, which was removed in early childhood without weakening the utility of the hands, lack of coccyx, monosymmetry of disability, the fusion of several vertebrae, etc. During the past year or two, the child has had strange monthly bouts of mental disorder, evidenced by confusion, irrational speech, and a tendency to gag into a coma. These last several hours, and then she did not remember them. During the first years of her life, three or four attempts were made to correct Cloaca surgically, which only succeeded in bringing down the lower margin of the rectal opening so that it now practically lies in fourcht. There is still incontinence except for solid stools, lower contamination and sithes. No sphincter can be felt under the skin and there is no sphincter to indicate the location of the absent anus. The process described was carried out on December 30, 1935. During the first week there was some inflammation around the stitches closing the vaginal wound, but this calmed down without breaking the 'repair, rectal stitching also held. The baby was discharged within three weeks, and practically all the wounds were healed, and the rectal boy and cavity were sufficiently and with practical normal control. Summary and conclusions cloaca retrovaginal of congenital origin with imperforate anus is a known but rare abnormality. This is associated with incontinence of feces and gas in many cases, with the sad consequences of such incontinence, but rarely with high degree obstruction that calls for surgical relief in the early hours of life. It is very satisfactory surgical correction, and a method of this correction is described in this report, with a report of three successful cases. It is recommended to postpone the operative attack until the child approaches puberty, when anatomical structures are easier to deal with than in childhood. Bodenhamer References, WM.: Congenital malformations of the rectum and noose. Samuel S. W. Wood, N.Y. 1860. Rizzoli, Francesco: Memorial del 'Accademia del Chinzì del' Institute de Bologna, 1857. 297, 1874. Discussion of Dr. William E. Lower (Cleveland, Ohio.) - I would like to present a case that is somewhat similar to that reported by Dr. Stone, except that fistula was between the rectum and the urinary bladder. The child was born with imperforate anus. She created a colostomy to relieve the acute condition, then made a synthetic anus, closed fistula between the rectum and bladder, and then closed the colostomy. The child is now 12 years old. It has no vagina, almost reaching maturity age, and secondary sexual characteristics in growth. The problem now is, what's next? Do I sterilize with rojiothetreatment or do another operation to remove the uterus and ovaries? I present this as a problem. If any one could just tell me what to do, I would appreciate it very much. Dr. Franz Turk (Montclair, N.J.) - I had a case, similar to the one presented by Dr. Stone, who I was working when she was six months old. Fecal contamination was so disgusting that parents couldn't take it anymore. The procedure was the same as that prescribed by Dr. Stone. Fistula at the back of the vagina was closed; The rectum was moved backwards and implanted in a new location. That was 24 years ago I didn't hear anything more than the patient until four months ago. Meanwhile, she became married and divorced. The cause of the divorce was due to the absence of intermuscular muscles, resulting in the loss of sphincter control over vaginal tart. On examination I found that in the process when she was six months old, I had not paid any attention to the recovery of the interstitial muscles. I told her that this was curable and the operation was performed, and the result is perfect. There's good control. It was also possible to repair the sphincter, the front of which was open. Local muscle functions have since been tested with satisfaction for both parties. Dr. Vernon D. Daveb (Chicago, Patient). - I think Dr. Stone's operation is much better than that described by Rizzoli, Delquet or De Kermison, and they all used the longitudinal incision, because, as Ommedon says in his script, the rectum in this type of operation tends to return to the unnatural place, so that after a few months or years the situation is largely the same as before the operation. I've seen six of these patients, children or infants, with cramping and vaginismus, and they worked on two of them according to the method prescribed by Dr. Stone, with one or two additives to technic. Before mentioning them I would like to say that it is very important to allow these children to go until the age of five to seven, because in two of these six patients, the rectum and vagina separated them spontaneously and naturally from each other, so that the baines may form between the vaginal nozzle and the rectum, and the intestines carried with them the muscles that surrounded an abnormal opening. In these six children, three continent remained with abnormal opening, and if one decides to perform an operation to replace the end of the rectum in another case, which is considered the normal location, it is very important to be sure that the external sphincter exists, because if the intestine is implanted in a new place and incontinence 'develops, the patient To be a lot worse off than with an unnatural opening and continence. I really think that continence exists in a number of these children. In the implantation of the rectum according to Doctor Stone's technic, you will notice the mucosa of the skin is sewn, this leads to a condition that is usually seen after the opening of the anus imperforate, namely, atrophy of the results of the mucosa ; Mucus covers the skin, and it is like a poorly performed Whitehead operation. I think it can be avoided. At least we did not avoid it in two patients of this group by making skin panels from the sides of the new opening of the intestine and letting them reverse in this new position of the rectum, so that the end of the intestine tends to retreat, as it always does, it pulls these loose plates of skin in with it. It can turn from the side, so that the canal lined with skin results, and if the skin is turned in enough, it is a very useful way to prevent restrictions, another bad result one can get from implanting these abnormal openings to a new site. Dr. Oro CB Hart (New York). - Dr. Stone's presentation was interesting and useful. I should imagine that the procedure shown in the cases would be sufficient in a good percentage. However, each of these situations presents some individual difficulties to overcome, and where there is the issue of the length of the rectum, as in the attached case, which I would like to report, I think should often try a more massive procedure. Status report. A seven-year-old girl was operated on in 1928. The opening of cloacal represented in the first figure is not entirely correct. It really fell well back into the back of the vagina. In this case also there was a snooze, but the anus imperforate completely. The scar is the result of some previous operation (Fig. 1). Fig. 1 There was a feeling that because of the distance between the opening of the cloacal and the opening of the anus, that a simple process of filling the rectum would not be enough, and that the modified krask process would help. Therefore, the usual incision was made, which is also an incision around the dimple, taking care to leave a bridge of tissue in this special position (Figure 2). With coccyx and a small portion of the deficit removed, it was easy to fill the rectum and get any desired length that seemed necessary at the time. The skin has been removed above the dimple (Fig. 3). I think it is somewhat interesting that in all the cases I have certainly seen, and in most of the cases reported, the internal and external sphincter was almost always present. FIG. 3 FIG. 4 After full mobilization the rectum was ejected through the anus (Figure 4). It is wise to leave the large cuff of the mucosa in order to allow the retreat which is sure to follow. (The various cracks were then closed, and in this An example of the opening in the vagina was so large that the stitches actually could not be placed. Therefore, the entire vaginal wall was rendered forward and sewn to the starch (Figure 5). Figure 5 other point of interest is the time when the first bowel movement should occur. I waited 13 days in this particular case. The wounds heal gently, without infection, and at the end of 30 days the patient had a very clear control of the glyto. In the first two or three years, and on a regular basis, every month, the bogeys were passed. Nowadays the child is in a completely normal state. Dr. Harvey B. Stone (Baltimore, MD) close - I think Dr. Pickhardt is right when he says there are far more complex cases than those shown, requiring extensive and detailed operations. In fact, I think some of them may be insoluble. Such a case, to which I referred briefly, was a patient who had a double uterus, with a very small tubular end to open the rectum at the top of the vaginal vault, between the two servix, with no gut below that point at all. I felt that this condition could not be corrected by any measures that I knew of, but I'm sure some of them are less difficult to correct by the approach Doctor Pickhardt has prescribed. I have no answer to the underdoctor's problem. It will take a wiser man than me to tell him what to do in such a situation, and I think Dr. Turk's condition confirms the desirability of postponing the operation in these children until they are out of the infant category, and certainly until they are four or five years old, and I think, better, until they are close to puberty. I appreciate Dr. David's suggestion to deal with the sewing line on the margin of the skin ositostomosis mucosa. I am absolutely sure that this is a valuable addition and will use it at the first opportunity. This page was quoted: Hill, M.A. (2020, December 3) embryology paper - perforated with a rectal vaginal kidney. 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