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# ANAL FISSURE; ITS ETIOLOGY, SYMPTOMATOLOGY, PHYSICAL EXPLORATION, DIAGNOSIS AND PROGNOSIS.

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# ANAL FISSURE; ITS ETIOLOGY, SYMPTOMATOLOGY, PHYSICAL EXPLORATION, DIAGNOSIS AND PROGNOSIS.

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FISSURE.—The domain of surgery includes few diseases which, while of so insignificant a character, produce such intense suffering to the patient as the affection under consideration, nor any in which proper treatment is followed more prompt relief and certain ultimate success.

Fissure, although such a simple lesion in extent and character, and so readily curable, exercises a most potent influence in undermining the patient's health and strength—the constant pain and irritation of the nervous system being more than the majority of persons can endure.

DEFINITION.—We may define fissure or irritable ulcer of the rectum to be a superficial breach of the mucous membrane in the anal region, of a highly sensitive nature, giving rise to spasmodic contraction and paroxysmal pain of a peculiar character. According to Bodenhamer,[1] its shape may be linear, oblong or circular.

SEAT.—Its position is usually just within the verge of the anus, beginning at the muco-cutaneous junction, or Hilton's line, and extending upward toward the rectum for a distance seldom exceeding half an inch. It may occupy any portion of the circumference of the anal region, but the usual site is at its posterior or coccygeal side.

MULTIPLE CHARACTER.—Although usually solitary, sometimes we find this lesion multiple, especially when it is of syphilitic origin.

[1] Anal Fissure, 1868, p. 45.

AGE AND SEX AFFECTED.—This disease is one of adult life, and is said to be more common among women than men. Very young children, however, are not exempt, as many reported cases show. The late Dr. D. Hayes Agnew[1] mentions having seen it in infants not over two months old. Dr. A. Jacobi[2] is of the opinion that this affection is a more common one than is generally supposed, and believes that many of the fretful children who sleep badly and cry constantly, and often present symptoms simulating those of vesical calculus, suffer from fissure of the anus. He quotes Kjellberg, who, at the Dispensary at Stockholm, among 9,098 children, found 128 cases of fissure of the anus; of this last number sixty were boys and sixty-eight were girls; the majority were less than one year old, and in seventy-three cases the age was less than four months.

ETIOLOGY.—The explanation of the very intense pain by which this disease is characterized is to be found upon study of the structural arrangement of the termination of the bowel, with especial attention to the nerve-supply of the part. Therefore, it will be in order to review at this point the more important anatomical features of the lower portion of the rectum. The outlet of the intestine is closed by two sphincter muscles, the external being immediately beneath the skin surrounding the margin of the anus. It is elliptical in form, about half an inch in breadth on each side of the anus and is attached posteriorly by a small tendon to the tip and back of the coccyx; anteriorly, it becomes blended with the transverse and bulbo-cavernosus muscles at the central point of the perineum. The internal sphincter consists of the normal circular fibers of the rectum considerably increased in number; its thickness is about two lines, and its vertical measurement from half an inch to an inch. It is situated immediately above and partly within the deeper portion of the external sphincter, being separated from it by a layer of fatty connective tissue.

These muscles—the two sphincters—are separated on the outer side by the attachment of the levator ani, some of the fibers of which are intimately connected with the external sphincter; on the inner side the muscles are in contact, the line of union corresponding accurately with the junction of the skin and mucous membrane. In most cases this junction of the sphincters is marked by a line of condensed connective tissue.[3] It is known as "Hilton's white line." Hilton has pointed out the important anatomical fact in connection with this line, which is that it is the point of exit of the nerves, principally branches of the pudic, which descend between the two sphincter muscles, becoming superficial in this situation, and are here distributed to the papillæ and mucous membrane of the anus.

These nerves are very numerous and account not only for the extreme sensitiveness of the part, but also, as stated by Andrews,[4] for its very abundant reflex communications with other organs.

These nerves play a very important part in the etiology of irritable ulcer,

[1] Principles and Practice of Surgery, 1878, Vol. I, p. 416.
[2] Intestinal Diseases of Children, p. 295.
[3] Andrews: Rectal and Anal Surgery, Chicago, 1889, p. 69.
[4] Loc. cit., p. 69.

the exposure of one of their filaments, either in the floor or at the edge of the ulcer, being an essential condition of its existence.[1]

The upper portion of the rectum possesses very little sensibility, as the chief nerve-supply of the organ is found at its termination and around the anus, hence the fact that such grave diseases as cancer or ulceration may exist in the higher parts of the bowel and not manifest their presence by pain.

From these general considerations we are prepared to understand why reflex spasm of the sphincter is such a constant and important sign of this malady, and how other and more general reflexes are to be accounted for; such, for example, as symptoms of bladder and urethral diseases, radiating pains, etc.

We are also enabled to find in the nervous mechanism of the part, an explanation of the predisposing causes, important symptoms and pathology of this peculiar affection.

As to the immediate origin of this lesion, it may be said to arise from a variety of causes, such as atony of the rectum, or other conditions leading to constipated habits; in these cases the bowel becomes impacted with hardened feces, which, when discharged, overstretch the delicate mucous membrane and thus, either by irritation or by direct abrasion, the ulcer is formed.[2]

In consequence of spasmodic or organic contraction of the external sphincter ani, fecal matter or some other foreign body becomes lodged in the fossa between the two anal sphincters, and by its long-continued presence in this situation, becomes highly irritating and lays the foundation of an obstinate fissure.[3]

Anal fissure sometimes results from the excoriations produced by vitiated and acrid discharges, such as occur in dysentery, chronic diarrhea, cholera, leucorrhea, etc. Hemorrhoids are frequently a predisposing cause, and a complication of this affection;[4] they narrow the outlet of the bowel, and by successive inflammatory attacks to which they are subject, the neighboring tissue loses its elasticity, and is rendered brittle and is easily lacerated.

Polypi are not at all uncommon causes of this lesion.[5] The polypus is usually situated at the upper or internal end of the fissure, but it may be on the opposite side of the rectum, as in several cases coming under the author's observation.

Allingham[6] states that these ulcers may result from a congenital narrowness of the anal orifice, and is then usually seen in children; or it may be caused by a hypertrophied condition of the sphincters, which hypertrophy may have arisen from severe constipation or any rectal affection.

[1] Ball: "The Rectum and Anus," pp. 128, 129.

[2] Bodenhamer (loc. cit., p. 58) calls attention to a fact of some importance as bearing upon this point, to wit: that in some cases of constipation, while the diaphragm and other abdominal muscles act with considerable energy, the anal sphincters remain more or less contracted, and yield but slowly and reluctantly, so that the indurated feces contuse and abrade the surface of one or more points of the mucous membrane, which, if they do not heal, lay the foundation of the disease in question.

[3] Such instances, as the causation of anal fissure, are mentioned by T. B. Curling, "Observations on the Diseases of the Rectum," Second Edition, London, 1855.

[4] T. J. Ashton, "Diseases of the Rectum," Second American, from the Fourth English Edition, 1865, p. 46.

[5] Allingham on "Diseases of the Rectum." Fifth Edition, London, 1888, p. 208.

[6] Loc. cit., p. 209.

Anal fissure is sometimes produced by a superficial excoriation or ulceration of the outlet of the bowel analogous to that so frequently observed upon the inside of the lips, the tongue and other parts of the mouth. Bodenhamer[1] mentions having seen several severe cases of this disease produced by this kind of *aphthous ulceration* in nursing mothers, and one in a young child. They were attended with extreme burning pain, and more or less anal spasm. He also states that in these cases the ulcerations of the anus were contemporaneous with similar ones of the mouth; their co-existence at the same time, and the exact similarity of appearance between them, left but little doubt of their identity.

Mr. Harrison Cripps[2] states that a source from which these ulcers sometimes take their origin is a little marginal abscess which has led to the destruction of the portion of the muco cutaneous surface lying over it.

The anus is liable to a species of chapping, resembling that of the lips in winter, which sometimes results in extremely painful fissures. Such a condition is supposed to be induced by dry atmospheric influence, or by some slight disturbance in the general health, which render the parts friable and liable to crack from the slightest violence.

Fissure is sometimes of syphilitic origin. Finally, it may be due to mechanical injuries, such as uterine displacement; the severe straining efforts made in parturition; the careless use of the enema syringe; the awkward employment of instruments by the surgeon in the diagnosis and treatment of rectal diseases, etc.

Symptoms.—The symptoms in the early stage of this disease are not usually severe, and are generally experienced during defecation, when at some point or other there will be an uneasy sensation, consisting of an itching, pricking, slight smarting, or a feeling of heat about the circumference of the anus. As the disease continues to progress, the discomfort attending the movements of the bowel will be greatly augmented, and at a variable period of time gives place to a severe pain of a burning or lancinating character, which is followed by throbbing and excruciating aching, attended by violent spasmodic contraction of the sphincter muscle, continuing from half an hour to several hours.

From reflex irritation pains are often experienced in other parts, simulating sciatica, or rheumatism; the urinary organs, as has already been mentioned, are liable to be sympathetically deranged, causing the attention to be diverted from the real seat of the disease.

The ulcer being fully established, the suffering usually comes on with great intensity shortly after the actual passage of the motion and it frequently lasts for many hours, completely incapacitating the patient for work while it continues. I have known persons affected with this malady who for hours were obliged to maintain one position, or to assume the recumbent position for fear that the slightest movement would aggravate the pain.

[1] Loc. cit., p. 59.

[2] "Diseases of the Rectum and Anus," Second Edition, London, 1890, p. 185.

After an indefinite period the pain subsides or entirely disappears, the patient feeling fairly comfortable, or else perfectly well, and to all outward appearance would continue so were it not for the knowledge that the subsequent passage of fecal matter would bring with it a recurrence of agony. In consequence of this dread the act of defecation is postponed as long as possible, with the result that when the evacution does takes place the pain is greatly increased.

The feces, when solid, will be passed streaked with purulent matter, possibly also with blood, and when more soft will be figured and of small size, or sometimes they are flattened and tape-like, due to the incomplete relaxation of the sphincter during defecation. Frequently the appearance of such a stool leads the inexperienced to make a diagnosis of stricture of the rectum. In this connection it may be well to state that a fissure is sometimes found associated with a stricture, which latter is due to a congenital contracted state of the anus. Serremone, quoted by Ball,[1] believes that the stricture is the cause and not the result of the fissure—the narrowed outlet in stricture being more liable to injury from overstretching.

When a fissure is of long duration the constitution becomes greatly impaired as a result of the constant pain, the constipation and the frequent resort to narcotics, and the patient is liable to fall into a state of melancholy and extreme nervous irritability; the countenance—expressive of pain—grows careworn and sallow; the appetite is poor, and there is more or less emaciation, associated with a general appearance of a person suffering from serious organic disease.

Flatulence is another annoying symptom that generally attends severe cases of anal fissure.[2] It is not only troublesome, but also painful, the disengagement of gas being almost certain to bring on a paroxysm of pain.

Such are the rational symptoms of anal fissure. If, then, a patient comes to a physician complaining of severe pain, lasting for some time after defecation, the presumption is strong that a fissure exists—no other rectal disease producing this characteristic distress. But in this, as in all other affections of the extremity of the intestinal track, we must supplement our investigation by an actual exploration of the parts, in order to determine its true character and to exclude the presence of other co-existing lesions.

Ocular and Digital Examination.—Before making the rectal examination, the bowels should be thoroughly emptied by an enema; the subsequent pain and anal spasm being prevented by a preliminary local application of a four per cent. solution of cocaine to the mucous membrane of the anus, the drug being applied on a pledget of cotton and left *in situ* for five or ten minutes. Care must be exercised not to use the solution too freely, as otherwise toxic symptoms are apt to ensue when the drug is employed in this region, the rich lymphatic and vascular supply of the part probably accounting for this fact.

The rectum and the bladder being completely evacuated, the patient should be placed on his side in a good light, with his knees drawn up and one hand supporting the uppermost buttock.

[1] Loc. cit., p. 132.
[2] Bodenhamer, loc. cit., p. 81.

Upon inspection, the first thing that frequently attracts our notice is a red, somewhat edematous prominence close to the verge of the anus, looking not unlike a small hemorrhoid. This excrescence has been termed the "sentinel pile." By placing a finger on each side of the tumor and pressing down and out, as recommended by Bodenhamer,[1] the fissure will be seen.

An important point, to which Bodenhamer calls attention, is the external appearance of the anus itself, which in these cases is usually in a highly contracted state, and more or less infundibuliform, the observer being struck by the very considerable depth to which the anus is retracted and its quite unnatural look.

The fissure is sometimes difficult to find and must be searched for in the folds of the anus. This can be accomplished by drawing the mucous membrane away on either side, by which means we usually will be able to see just within the orifice an elongated, club-shaped ulcer; the floor of it may be very red and inflamed, or, if the disease is of long standing, of a grayish color, with the edges well defined and indurated. Sometimes the ulcer is quite superficial, while in other instances it has extended completely through the muco-cutaneous surface, exposing the subjacent muscular coat. Cripps[2] states that these ulcers are sometimes undermined, so that a probe may be passed for a short distance beneath them, while occasionally a little fistulous channel will run some distance up the anus.

A fact to which special attention should be directed here, is that small ulcerations may exist in the sinuses of Morgagni. Kelsey[3] and Vance[4] have met with such cases, the ulcerations being completely hidden from sight, and only detected by the sharp pain caused by the introduction of a small bent probe. This condition is no doubt a rare one, but on this account is none the less important, for its situation is such that it can be readily overlooked.

The next step in the examination of a case of fissure is the introduction of the finger into the rectum,[5] which should be conducted in the following manner[6]: If the lesion be situated dorsally, pressure should be made by the finger toward the perineum, thus avoiding the fissure and rendering the introduction of the digit as painless as possible. If the fissure be situated anteriorly or laterally, the finger should be pressed toward the opposite side of the bowel.

In cases of anal fissure the speculum is seldom required by those accustomed to making rectal examinations. In the majority of instances the possession of the "*tactus eruditus*"—education of the sense of touch—will enable the surgeon to form a correct diagnosis without the aid of the speculum, and thus save the patient much pain.

[1] Loc. cit., p. 92.

[2] Loc. cit., p. 187.

[3] "Diseases of the Rectum and Anus," Third Edition, 1890.

[4] Medical and Surgical Reporter, August 14, 1880.

[5] In some cases of fissure, the irritable condition of the sphincter will cause such contraction of the anus when an examination is attempted that it will be impossible to pass the surgeon's finger into the rectum without etherization. In these instances it is better to advise the patient to submit to such operative measures as are deemed necessary, at the same time the examination is made under ether.

[6] Allingham, loc. cit., p. 212.

It is not an uncommon occurrence, according to Allingham,[1] to find a polypus associated with fissure, it being situated at the upper end of the ulcer or lying against it on the opposite side of the wall of the rectum. I have met with several such instances. If left undiscovered, treatment of the fissure will prove useless, for the lesion will not heal until the polypoid growth is removed. In searching for a polypus, it is important to remember that the investigation should be conducted by passing the finger from above downward; as, otherwise, the tumor may be pushed up out of reach, the pedicle, in these cases, often being of considerable length.

DIFFERENTIAL DIAGNOSIS.—The manifestations of this disease are so characteristic of the lesion that it seems almost impossible for an error to be made in its diagnosis. The peculiar nature of the pain, the time of its occurrence, either during or some time after an evacuation of the bowels, its continued increase until it becomes almost unbearable, and its gradual decline and entire subsidence until the next evacuation, are symptoms clearly pointing to fissure, and, in most instances, should be sufficient evidence to establish a diagnosis; yet in a number of well authenticated cases mistakes have been made, and patients suffering with this disease have been treated for neuralgia, uterine or bladder trouble, stricture, and even hemorrhoids.

Anal fissure is very readily distinguished from neuralgia by the absence in the latter affection of any breach of surface, or of any other disease of the mucous membrane of the rectum; by the entire want of connection between the pain and the alvine evacutions; and by the constant suffering. In neuralgia, the pain caused by pressure with the finger *in ano* is not confined to one spot, as it is in fissure, but all the parts around the anus are alike tender. It is true that the morbid sensibility of the rectum and anus caused by fissure and that caused by neuralgia, are often so intimately blended that it is sometimes no easy matter to distinguish between them; nothing but the detection itself, in some cases, of the fissure, which can always be discovered by a thorough examination, will clear the diagnosis.[2]

The symptoms of anal fissure so often closely simulate those of uterine disease and bladder affections that the surgeon is led astray, and overlooks the real seat and the true nature of the malady. Occasionally the spasmodic condition of the sphincters in these cases simulate the symptoms of rectal stricture, but thorough examination will dispel all uncertainty by revealing the presence of the ulcer.

Frequently uterine trouble or hemorrhoids are found associated with fissure, and when such is the case, the patient is treated for either one or the other of the first two complaints—the presence of the fissure being unsuspected and consequently neglected. In such instances a careful inspection of all the parts concerned will at once remove all errors in diagnosis and dispel all doubts. In children the fact must always be borne in mind that fissures and other erosions about the anal orifice may be due to the scratching caused by the irritation of pin-worms.

[1] Loc. cit., p. 212.
[2] Bodenhamer, loc. cit., p. 100.

COURSE AND PROGNOSIS.—Anal fissure is by no means an immediately dangerous disease; nor can it be said that it has any spontaneous tendency toward recovery if let alone. An indefinite time may elapse without any other change than the gradual wearing down of the patient's vitality from continued suffering and nervous strain. With proper treatment this disease can be promptly cured and with practically no risk, the operation usually practiced being one of the simplest surgical procedures.