The dressing consists of sterilized vaselin and a few squares of gauze held in place with a T bandage. No tube or other dressing is placed in the rectum. As a rule no pain is experienced; if there is any, one hypodermic injection of 14 mg. (1/5 gr.) morphin given as soon as the patient complains will be all that is required.

In these operations, as in hemorrhoid operations, burning the skin should be avoided. Such burns are extremely painful and the patient will often complain bitterly of them long after he is entirely well from the operation.

AFTER-TREATMENT.

The after-treatment consists of a limited quantity of liquid or light diet for seven days. An attempt was formerly made to confine the bowels by means of opium until the eighth day, when they were moved without pain. In several cases the bowels moved voluntarily on the second and third days without pain or subsequent trouble resulting therefrom. The bowels are now moved in all these cases on the third day, two ounces of castor oil being given. The patient is allowed up and about thereafter and the bowels made to move daily.

It is practically impossible to infect the peritoneal cavity by this method, not an inconsiderable advantage when operating in this region. There is no narrowing of the anal orifice. In cases in which this seems desirable three or four longitudinal scars, 3 mm. (1/8 in.) in width, of the mucous membrane of the gut, after the operation is completed, will accomplish this. In these cases the wound usually is thoroughly healed about the tenth day and the patients are discharged from the hospital fourteen days after operation.

THE RELATIVE MERITS OF THE OPERATIONS FOR HEMORRHOIDS.*

J. D. SINGLEY, A.M., M.D.

Surgeon to the Pittsburg Hospital; Associate Professor of Surgery and Clinical Surgery, University of Pittsburg; Director of Magee Pathological Institute, Mercy Hospital.
PITTSBURG, PA.

Is there a mortality attached to any of the classical operations for hemorrhoids? Undoubtedly there is. A word of protest against the rather common statement, by surgeons at least, that the mortality of a given operation is "practically nil." However small, there is a definite mortality for any surgical procedure to be weighed in the balance with the risk to life if no operation is done.

With special reference to the mortality and the subsequent condition of the patient, I wish to direct attention to a consideration of the relative merits and demerits of the three well-recognized types of operation for hemorrhoids: (1) the ligature method, (2) the Whitehead operation, and (3) the clamp and cautery operation. They are too well known to require description.

THE LIGATURE METHOD.

The pathologic condition about the lower end of the rectum in hemorrhoids—dilated, elongated and tortuous veins, often filled with simple or infective thrombi—and the impossibility of securing an operative field even approximately free from bacteria, afford excellent grounds for anticipating an occasional serious post-operative complication which may and occasionally

does result in death. The puncture of a needle or a snip of the scissors can readily carry the *Bacillus coli communis* (whose function as an infective agent in all parts of the body is being recognized more and more) or other pathogenic bacteria into a vein and produce an infectious thrombophlebitis with subsequent embolism and death. Granted a clean field, the same process may be set up, for the thrombi in the hemorrhoidal veins are frequently already infected, presumably with the *B. coli communis*; and, granted that the thrombi are simple non-infected clots, such an embolus may result seriously.

That these dangers are not purely theoretic ones I am convinced from having observed one fatal case of pyemia and a number of cases of simple embolism following this apparently simple operation in the hands of capable and clean operators. In the cases in which simple embolism has been observed the emboli fortunately have lodged in the veins of the leg, but they may just as readily find a more vital spot.

There is certainly a definite, though low, mortality for this operation in the best hands, and it should be discarded in favor of other procedures, provided they promise less risk to life.

THE WHITEHEAD OPERATION.

This is a most attractive method from the standpoint of the operator. It appeals to him as a more complete and exact surgical procedure in that it removes by nice dissection the entire pile-bearing area and leaves a neatly closed wound. There can be no doubt, however, but that the same possibilities for danger exist in this operation as have been pointed out for the ligature method with the same definite mortality as an immediate result.

The common objection to the operation is based on the severity of the hemorrhage in patients already more or less debilitated by loss of blood. Improperly performed, this is a valid objection, but properly carried out it does not hold. Severe hemorrhage is produced by dissecting up the mucous membrane containing the piles about the entire circumference of the rectum before applying the sutures. If the dissection is carried up beyond the level of the hemorrhoids at but one point and the mucous membrane is divided and immediately sutured to the skin edge, thus controlling hemorrhage at that point, and if this be carried out step by step completely around the rectum the loss of blood will be slight.

The ultimate results of this operation are excellent, as a rule, but they are by no means uniformly so. In a certain number of cases the patients develop stricture of the anus of greater or less severity, a most distressing condition. This results from the contraction of an annular cicatrix which it is impossible to avoid, for complete primary union practically never occurs. On the other hand, some of the patients have incontinence of feces from interference with the nerve supply of the sphincter. In either case the patient has made a poor exchange for his hemorrhoids.

The real objections, then, to this operation, which should far outweigh its operative nicety, are (1) the danger of simple or infective embolism, (2) the risk of stricture, and (3) the risk of incontinence.

THE CLAMP AND CAUTERY OPERATION.

If the details of this operation, as advocated by Ochsner, are strictly adhered to, it is, in my opinion, free from the objections pointed out for the ligature and

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Whitehead operations. The danger of infection is reduced to a minimum, since there is no wound of the mucous membrane, except that produced by the cautery, which destroys bacteria and at the same time seals lymphatics and blood vessels. The hemorrhoidal masses should all be caught and brought down before any of them are cauterized. If this is not done it is almost impossible, while bringing down other masses, to avoid tearing open a previously cauterized stump, thus inviting both hemorrhage and infection. The clamp should always be applied in the long axis of the bowel so that the resulting cicatrices are in its long axis instead of transverse. If applied transversely and there are many hemorrhoids we produce an annular cicatrix and the same conditions result as in the Whitehead operation with the same liability to stricture.

For the purpose of preventing hemorrhage and infection it is advisable to avoid cutting off the hemorrhoid after applying the clamp. If cut, an avenue of infection is opened up and some vessel thus divided may be overlooked in cauterizing. The entire mass should, instead, be slowly burned away with the cautery at a dull red heat. The hemorrhoids should be gently handled at all times lest a portion of clot be loosened up and find its way into the circulation. The bowels should be confined for three or four days following operation. When they are moved there is almost certain to be some slight tearing of cicatrices, but by this time Nature has had an opportunity to wall off the area securely with inflammatory exudate and thus protect against serious infection.

That any of these operations are efficient in removing the pathology present in hemorrhoids can not be disputed, and each of them finds favor with operators of unquestioned ability. While the clamp and cautery is probably the least attractive from a strictly operative standpoint, the arguments advanced in its favor and the results obtained with it appeal to me as indicating it to be the operation of choice in almost every case.

RANULA AND OTHER DISEASES OF THE SALIVARY GLANDULAR SYSTEM.*

THOMAS L. GILMER, M.D., D.D.S.
CHICAGO.

Ranula is a soft cystic tumor in the floor of the mouth, unilateral at first, but later, as the cyst enlarges, perhaps passing beyond the median line. The name "ranula" is only descriptive of appearance, having no significance otherwise.

Formerly ranula was, and is at present by some, supposed to be a cyst containing pent-up salivary gland secretions from stenosis of Wharton's or Rivini's ducts, as a result of inflammation in some part of the duct or its meatus; or from occlusion of the duct by an accumulation of salivary calculus.

Bland Sutton says: "There is at the present time a strong tendency to restrict the name 'ranula' to cysts arising in connection with ducts of the three sets of salivary glands opening into the mouth, and to designate them as submaxillary, sublingual and parotid ranulae according to the gland affected." Continuing, he says: "In the majority of cases ranulae are probably retention cysts due to obstruction of a duct. They are common in connection with the submaxillary and sub-

lingual glands." Again, he says: "Occasionally the obstruction is caused by a calculus impacted in the orifice of a duct, but cases come under observation in which the duct is not completely obstructed, yet the fluid is retained." "It is reasonable to believe that ranulae sometimes arise independently of obstruction to the main duct, and as in the case of so-called pancreatic ranulae, observation supports the view that there is in all probability a pathologic cause apart from mere obstruction concerned in their production."

Garretson says: "Ranula is the analogue of a sebaceous tumor, being simply a cyst of retention, a collection, the result of the closure of a tube of outlet."

Marshall says: "Ranula is a term applied to retention cysts of the ducts of the submaxillary and sublingual glands (Wharton's and Rivini's ducts)." Again, he says: "A ranula is a collection of salivary fluid in the excretory duct of the salivary gland."

The International Text-Book of Surgery says, "A cyst due to distention of Wharton's duct is called a ranula."

Lippincott's Medical dictionary defines ranula as "a fluctuating semitransparent tumor under the tongue, resulting from accumulated saliva and mucus in the ducts of the sublingual gland or from the independent development of a cyst in the sublingual region."

Stengle says: "Ranulae are formed by dilatation of the ducts of the small mucous glands." Also: "At times Ranula may be a cystic dilatation of a duct of the sublingual salivary gland or that of a submaxillary gland."

Eisendrath says: "Acute ranula appears suddenly while eating; cause, occlusion of Wharton's or duct of sublingual gland. Chronic, it is a cystic dilatation of the sublingual gland and is a retention cyst."

Von Bergmann says: "The sublingual salivary gland probably serves as the point of origin of the majority of these ranulae."

The following is culled from Hippel:¹ "Before first half of 1800 all tumors of the floor of the mouth were called ranulae." Hippel also says that Diemerbroeck was the first to offer the theory that ranula was due to retention of saliva in Wharton's duct through narrowing or closure of the duct. Dupuytren thought of the possibility of ranula being mucous gland cysts.

De Closmadeuc found that stenosis of Wharton's duct by a foreign body never produced ranula. Experiments by Claude Bernard, Ranvier and others of the day proved de Closmadeuc's statement to be correct.

Pauli and Telliaux named a condition of distended Wharton's duct which broke into the surrounding tissues thus constituting not a ranula but a ptyalocele. Neumann discovered ciliated epithelium, lining the wall of ranula and as the Bochdeleck duct was the only ciliated epithelium-lined gland in the floor of the mouth, then it must be the starting point of ranula.

The nature of ranulae which have no cilia on their walls has been worked out by Imbert and Jeanbrau, Veau, Thomas and Guibe. They think that such ranulae are embryonal remains of epithelial origin, either from mucous membrane of the duct, or parts of the sublingual salivary glands cut off from the main gland.

Suzanne and Hippel showed ranula to be of sublingual glandular origin, a primary interstitial chronic inflammation, the connective tissue formed compressing the ducts in the gland, a cyst being the result. The pressure causes atrophy of glandular tissue and a confluence of the lobules, usually into a unilocular cyst.

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1. Arch. f. klin. Chir. Bd. 55.