

## OPERATIVE TREATMENT OF COCCYGODYNIA \*

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The most important lesion of the coccyx is that which is usually termed *coccygodynia*, or painful coccyx. This is a condition which occurs predominantly in women, but it may occur in men. The majority of the cases are due to a definite injury, such as a fall directly on the sacrococcygeal region or a kick or blow in this region, or to some injury which occurs during labor. Occasionally the condition appears gradually and without known cause. There are, in the main, two groups of opinions as to the etiology. One group, composed largely of neurologists, believe that the condition is entirely a functional neurosis and that treatment directed at the coccyx does little or no good. The other group, composed largely of surgeons, believe that the condition is due to some pathological lesion in the coccyx, or in the coccygeal plexus of nerves which surround it, and that treatment of the coccyx should be instituted in an effort to relieve the pain. This paper is based on a series of fifteen cases of coccygodynia in which I have operated and in fourteen of which it has been possible to ascertain the result.

The symptoms vary from slight pain in the coccyx after prolonged sitting to excruciating pain and tenderness which may make sitting almost intolerable, and they are not infrequently accompanied by nervousness and irritability which cause the patients to be considered psychoneurotic. The most important symptoms are: (1) pain on sitting, which is usually more marked when sitting in a soft chair, although some patients complain of more pain when sitting on a hard chair, and all patients complain that after sitting for some time, as in a theater, the pain is aggravated; (2) a rather sharp pain on getting up from a chair or on sitting down; (3) pain on defecation; (4) pain on stooping; (5) pain on lying on the back; and (6) pain on walking. The pain is always localized in the midline at the tip of the spine, but may be referred either to the right or to the left buttock and for this reason may resemble a sacro-iliac lesion. It is caused by pressure on the coccyx or by strain on the muscles attached to the coccyx.

On physical examination, there is acute pain on direct pressure over the coccyx. There is also pain on pressure on its anterior or deep surface by rectal examination and pain on manipulation of the coccyx with the finger in the rectum. A roentgenographic examination may or may not reveal a deformity. In some of my patients the x-ray has shown the tip of the coccyx to be bent forward or deviated laterally, and in one instance

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the tip was so flexed that it pointed directly upward. In none of the patients operated upon has the roentgenogram revealed a fracture or a dislocation. At the present time I do not consider the x-ray an aid in the diagnosis of coccygodynia, except to rule out possible disease. The diagnosis is made from the history and the presence of acute tenderness when pressure is made over the coccyx. As a matter of fact, even a rectal examination is not necessary for the diagnosis, although it is usually done, presumably to rule out hemorrhoidal pain. However, I see no reason why pain due to hemorrhoids should be confused with tenderness of the coccyx.

#### PATHOLOGY

I have not been able to find in the literature anything concerning the pathology of coccygodynia, other than the occasional statement that the coccyx was bent or deformed or fractured. In my opinion, the gross form or position of the coccyx has little or nothing to do with the syndrome of coccygodynia, because no two coccyges which I have removed were alike and most of them would be classed as normal.

In attempting to explain the condition, I have sectioned six of the specimens and studied them microscopically, but the sections revealed apparently normal bone and connective tissue and showed no evidence of arthritis or of inflammation. The pathology is, then, unknown.

#### TREATMENT

In acute coccygodynia there is usually a history of a recent injury to the coccyx and the patient is suffering considerable pain and desires relief. When possible, a roentgenogram should be obtained in order to determine whether or not a fracture or displacement of the coccyx is present. If there is a definite dislocation or a fracture with marked displacement of the fragments, an attempt should be made to reduce the displacement, and local or general anaesthesia may be used. The coccyx is easily grasped between the finger in the rectum and the thumb on its posterior surface and may be manipulated as desired.

However, dislocations are very rare and in fractures there is usually little or no displacement of the fragments. In fractures without displacement the treatment is the same as though no fracture were present. Sedatives are given when necessary and a hot sitz bath is prescribed to relieve the pain. The patient is advised to get an inflated rubber ring or a horseshoe-shaped cushion to sit on and to avoid movements or positions which aggravate the pain. Strapping the low back and buttocks with adhesive may be tried, but, if this causes the pain to be more severe, the adhesive should be removed. The same is true of a girdle. In some cases a girdle or corset gives some relief, but in others it causes the pain to be more severe. If the pain is very severe, the patient should be advised to remain in bed for a few days or until she can be up and about with comparative comfort.

A coccygodynia may be said to be chronic when the pain has persisted over a period of two months or more. It is the chronic coccygodynia with which this paper is especially concerned. At present there is wide divergence of opinion concerning the best form of treatment for this condition.

Many patients with a chronic coccygodynia are quite nervous or definitely psychoneurotic, and many believe that coccygodynia is a functional disorder and that treatment directed at the coccyx is unwise. A certain percentage of these patients get well under psychotherapy if it can be continued long enough. The same is true of any other form of therapy, or of no therapy. In many patients the pain eventually disappears, but it may recur.

For chronic coccygodynia, Baastrup recommends deep x-ray therapy and states that ten out of fifteen patients were cured by this treatment. Injections of alcohol into the painful area have been used for thirty years and are still recommended (Yeomans), but they have not gained popular favor and Gant definitely states that in his hands the injection treatment was not successful. Kleckner injects 5-per-cent. quinine and urea hydrochloride, and Mandl uses forty cubic centimeters of .5-per-cent. novocain. Recently Suermondt has injected forty cubic centimeters of 1-per-cent. novocain into the sacral canal and the injection is repeated at intervals if necessary.

When consulted by a patient with chronic coccygodynia, I am interested in the course and severity of the pain and the patient's reaction to it. If the pain is not very severe or is becoming less severe and if it does not greatly inconvenience the patient, I give her a mild sedative or small doses of salicylates, have her get an inflated rubber ring to sit upon, advise her to avoid, if possible, movements or positions which aggravate the pain, and tell her that, if the pain should become sufficiently troublesome to warrant an operation, the coccyx can be removed with the expectation that the pain will be relieved permanently. However, most of these patients never come to operation.

If the pain is severe and causes great inconvenience to the patient, I try the line of treatment just described for a few weeks and, if there is no improvement, advise removal of the coccyx. The operation may be fairly difficult and I think that it should be performed with meticulous care.

#### TECHNIQUE OF THE OPERATION

The patient enters the hospital on the day preceding the operation and is started on a low-residue diet.

The operation is performed under general anaesthesia with the patient prone upon a table, one end of which may be lowered so that the thighs may be flexed about 30 degrees.

I have not tried the transverse incision; I use a midline vertical incision about two and one-half inches long, the middle of the incision being

over the sacrococcygeal articulation and the lower end well removed from the anus. This incision is carried down to the bone throughout its length, and it is usual to find the coccyx pointing directly downward,—that is, away from the skin incision. By sharp dissection, as much as possible of the posterior surface of the coccyx is exposed. If it is bent forward, the tip cannot be exposed until later.

After the posterior surface of the coccyx has been well exposed, the posterior part of the intervertebral disc between the coccyx and the sacrum is cut with a knife. The ligaments between the inferior part of the sacrum and the first segment of the coccyx are then carefully cut away from the coccyx; in so doing the operator should keep close to the bone. Usually at this point a small artery is cut on each side of the bone and this must be clamped in order to secure a clear field.

After the lateral part of the first segment is freed, it is grasped with a towel clip and, by twisting it from side to side, the remaining attachments to the sacrum are put on tension and cut with a knife. The coccyx is then pulled gently backward—that is, in the direction tending to pull it out of the wound—and, by sharp dissection with a knife, the aponeurotic fibers are cut from its lateral borders and the tissues are cut from its deep surface. This dissection is done a little at a time, first on one side and then on the other. It is to be remembered that the rectum lies very close to the deep surface of the coccyx and for this reason the knife is kept against the bone. Some surgeons have an assistant keep his finger in the rectum during this part of the operation. I cannot see what good this does, and I should be afraid that the assistant might push the wall of the rectum backward and endanger both the rectum and his finger. When the tip is reached, the strong fibers attached to it are cut transversely and the entire bone is removed in one piece. On three occasions, where the tip has been curved forward, I have severed the coccyx near its end and have then removed the tip separately. This was done accidentally, but it is the easiest and safest way to remove a tip which is anteverted.

After the coccyx has been removed, the distal end of the sacrum is found to be quite prominent. This prominence is removed by beveling the posterior margin of the lower end of the sacrum or, if necessary, by removing some of the entire thickness of the bone and beveling what is left, the object being to leave nothing that will be irritated by pressure from without.

An effort is then made to restore the posterior pelvic floor by placing from two to four mattress sutures of chromic catgut in the aponeurotic tissues which have been cut from the margins of the coccyx and drawing them together in the midline to obliterate the dead space and to cover the stump of the sacrum. The subcutaneous tissues are then closed snugly with No. 000 plain catgut, the skin is closed with silk, and a small dry dressing is applied.

The dressing is not sealed with collodion nor is the buttock strapped, but the nurse is cautioned to watch the patient and to change the dressing

if it should become soiled. The constipating diet is continued and on the fourth day the patient is given an enema, after which the dressing is changed. The sutures are removed on the fifth or sixth day and the dressing is kept on about a week longer.

Most of the patients leave the hospital in six or seven days and begin to walk a little. Their activity increases as the wound heals firmly, and there is no after-treatment.

An immediate cessation of pain is not to be expected, because the painful coccyx has been replaced by a fresh operative wound. The average patient is quite active within three or four weeks after the operation, but still has some pain on sitting. This usually disappears within a month or two, but in an occasional case it is three or four months before the patient can attend a theater with comfort.

#### CLINICAL RESULTS

During the past six years I have operated upon fifteen patients, using the technique described. There were fourteen women and one man in the series and their ages ranged from seventeen to fifty-eight years. Eleven of these patients attributed their condition to a fall on the end of the spine or tail bone; one patient was kicked; one, who was a stenographer, believed that her symptoms were due to sitting all day in an uncomfortable office chair; and in two cases the symptoms appeared after normal deliveries. The symptoms had been present for from three months to twelve years and the average duration of symptoms was a little over two years.

As to the results of the operation, it has been possible to trace fourteen of these patients and all except two have been completely relieved of their coccygeal symptoms. One of these was operated upon only one month prior to this report, at which time she was convalescing normally with the expectation of obtaining complete relief within another month or so. The other is a woman, fifty-eight years of age, who was operated upon five months before this report and whom I have not seen since she left the hospital eight days after the operation. She writes that her symptoms, which were quite severe, have almost entirely disappeared, but that she still has a little pain after sitting for a long time in one position.

I have not been able to trace one of the clinic patients. She was from out of town and was operated upon in 1933. Six months after the operation her husband wrote that she was worse than before the operation, but, as she also complained of pain in the right lower quadrant of the abdomen before the operation, I do not know whether her later symptoms were due to this or to the coccyx, and repeated letters have not been answered.

Two of the patients have borne one or more children since the operation and have had no difficulty.

One patient also complained of severe pain and tenderness over the first and second sacral spinous processes. Therefore, the incision was

extended upward and those spinous processes were removed with subsequent disappearance of the pain.

There were two postoperative complications. One patient began to menstruate on the day after the operation and the skin wound became red and inflamed. Two days later, I removed the sutures and the skin edges separated. The wound took about a month to heal. Now I do not operate on the coccyx during the week before a menstrual period is expected.

The other complication was due to poor surgical judgment. Seventeen days after the coccyx was removed, a large Bartholin-gland cyst was excised by a gynecologist. Six days later, the coccygeal wound was opened and a considerable amount of pus was evacuated. Later a rectal fistula developed and of course I was accused of having nicked the rectum. However, the coccygeal wound healed and, when the rectal fistula was excised some months later, the tract led to the labia and there was no tract to the sacrococcygeal region, so I was exonerated.

#### CONCLUSIONS

1. Most cases of acute and of mild chronic coccygodynia respond to conservative treatment.

2. In severe chronic coccygodynia, excision of the coccyx, followed by careful restoration of the pelvic floor, may be expected to relieve the symptoms and to cause no disability.

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