

# COCCYDINIA — ITS TREATMENT BY SACROCOCCYGEAL ARTHROPLASTY\*

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Coccydinia is a symptom rather than a disease, and is the result of several aetiological factors. It is not the purpose of this paper to discuss the aetiology, but rather the treatment. 'Patients suffering from this disability are not neurotic, it is only that their symptoms have not been understood.'<sup>1</sup>

The condition has been known for a long time; coccygectomy was first recommended for the painful coccyx by Petit in 1758 and subsequently performed by Nott in 1844.<sup>2</sup>

For many years surgeons had been dissatisfied with the results of the operation of coccygectomy. Thus, Edwards<sup>3</sup> stated that there was 'more or less continuous disagreement' about the effectiveness or otherwise of operation and concluded that 'because of the frequent failure of excision to effect a cure, conservative measures should be persisted with for longer periods than is generally the practice'. It was considered possible that the general lack of good results in this operation might be associated with

the extensive disruption of the functional anatomy of the area, either during, or following the operation.

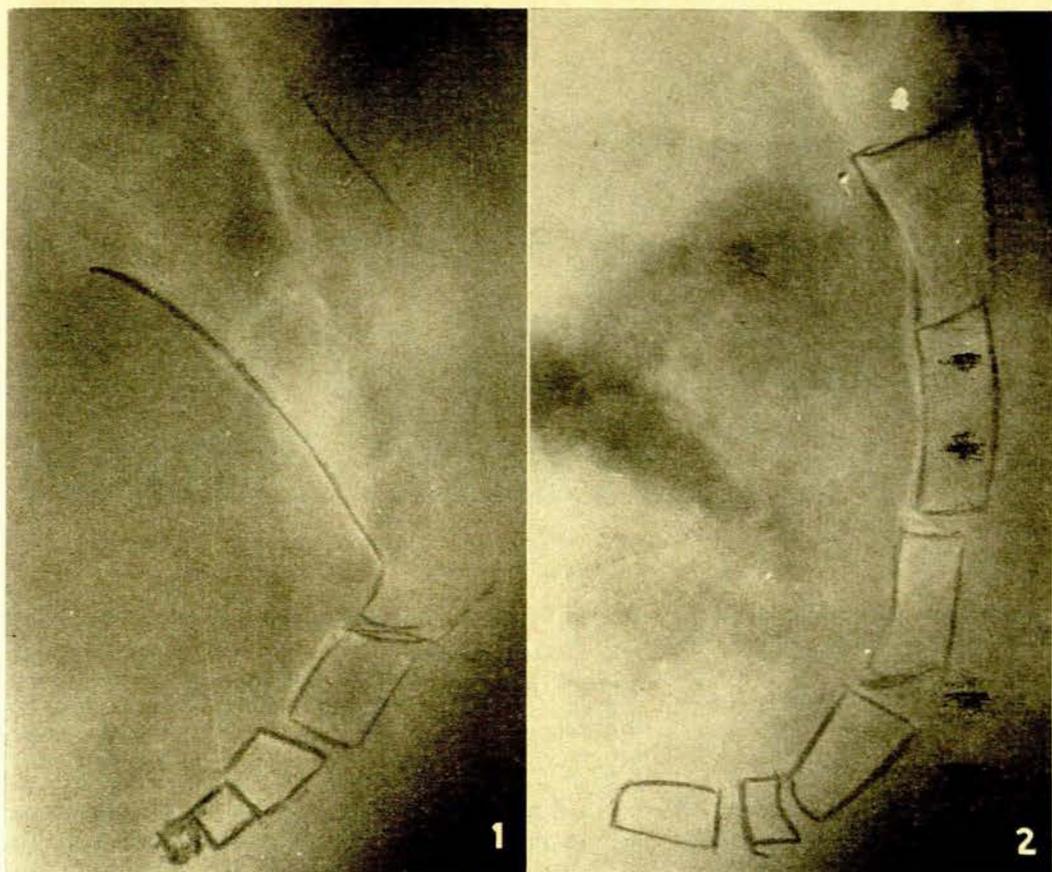
## ANATOMY

It is well known that the attachment of the powerful levator ani muscle, and also of the coccygeus muscle is on the anterior aspect of the coccyx. The gluteus maximus derives part of its origin from the posterior surface, and the superficial portion of the sphincter ani externa originates from the tip of the coccyx.

Moreover, the filum terminale of the spinal medulla is attached to the posterior surface of the canal in the 1st segment. From the 1st segment, also, a rudimentary transverse process projects laterally and slightly upwards. This helps to complete the foramen for the passage of the anterior division of the 5th sacral nerve. The posterior division of the nerve descends on the back of the transverse process.

Normally the coccyx curves forwards and the degree varies with individuals. It seems that this curve is usually more pronounced in females, and possibly accounts for

\* Paper presented at the 43rd South African Medical Congress (M.A.S.A.), Cape Town, 24-30 September 1961.



Figs. 1 and 2. Two variations of the anteflexed coccyx.

their greater liability to coccydinia. The coccyx does not touch the seat when one sits erect, but tends to be pulled forward by the muscles that are attached to it. There is also an additional pull on it when one climbs stairs, and patients usually complain of an aggravation of symptoms when stairs are being climbed. Thin individuals occasionally show a bony prominence at the sacrococcygeal joint, which may be subject to pressure (Figs. 1 and 2).

An excessive degree of normal curvature does not, *per se*, determine the onset of symptoms, but where trauma has been superimposed a certain proportion of these patients develop intractable pain at this site. In these cases, despite prolonged conservative treatment, which usually consists of local injections of various kinds, physiotherapy, manipulation of the coccyx with or without anaesthesia, and advice in respect of their bowels and the use of air rings, a certain hard core of 'resisters' to treatment remain. These patients are unable to obtain relief, and are willing to submit themselves to operation.

#### OPERATIVE TREATMENT

In 1945, in an attempt to minimize the disruptive effects of coccygectomy, I felt it might be possible to perform an arthroplasty at the sacrococcygeal joint by removing only the 1st coccygeal segment. The basis for this is the fact that in the vast majority of chronic cases the local tenderness is at its maximum over the sacrococcygeal joint. In

addition the patient feels maximum pain at this site when the coccyx is gently manipulated.

Indications for operation are: (1) the presence of symptoms for a year or more, and (2) the failure of adequate conservative treatment.

#### Technique of Operation

The patient is anaesthetized and intubated, and then placed in the prone position. A pelvic rest renders the operation easier by reducing the intra-abdominal pressure, thus lessening the consequent tendency to ooze at the operation site (Fig. 3). Suction and diathermy, although not absolutely essential, also increase the ease of the required dissection. An in-

cision,  $2\frac{1}{2}$  - 3 inches long, and centred over the sacrococcygeal joint, is made just lateral to the midline and is deflected to the side of the coccyx, should this be found to be deviated. The skin and subcutaneous tissues (mainly fat) are incised right down to bone. At this stage all haemorrhage must be arrested and a dry field obtained before proceeding to the next step.

The periosteum is incised and reflected with a periosteal elevator. There may now be troublesome bleeding from the bone, and this must be arrested. Then, keeping close to bone, the 1st segment of the coccyx is excised. Again, definitive haemostasis must be carried out. If the gap between the sacrum and the remainder of the coccyx does not appear to be adequate, a half-inch may be nibbled from the sacrum; when this is done the raw area should be cauterized with diathermy (Fig. 4). Once a completely bloodless field has been obtained, 3 deep mattress sutures are inserted and the wound is closed with interrupted sutures — no drainage is employed.

As far as possible the formation of a haematoma should be avoided, since this may give rise to considerable post-operative pain and may also serve as an excellent nidus for infection.

Postoperatively the patient is kept constipated for 5 days on a low-residue diet and nursed in the prone position. After this period an olive-oil enema is given to assist with the evacuation of the bowels. The sutures are removed on

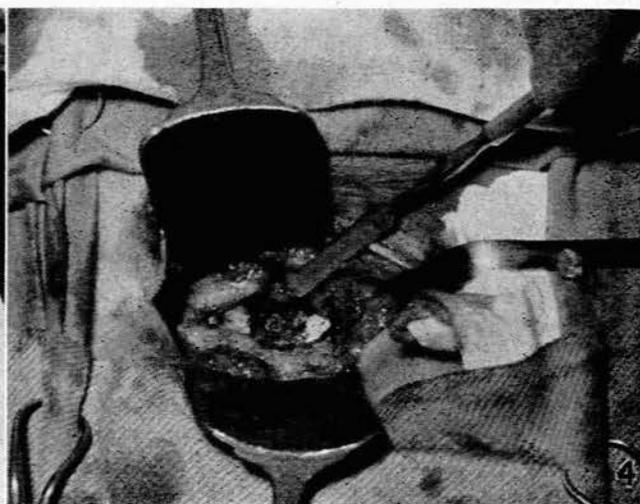


Fig. 3. The patient is lying in the prone position on a pelvic rest during the operation.

Fig. 4. The pointer shows the gap between the tip of the sacrum and the second piece of the coccyx, which can be seen as lighter areas on either side.

the 10th day. The following points must be stressed:

1. It is essential to have a completely dry field before closing the wound.
2. When resecting the 1st piece of the coccyx, remain close to bone. The reasons for this are obvious.

#### ANALYSIS OF CASES

The operation was performed on 30 patients between 1945 and 1961. All of them were females. The longest follow-up period is 11 years and the shortest is 6 months.

The average age of the patients was 36 years, the youngest being 14 and the oldest 55. The average duration of symptoms was 2 years 7 months.

#### RESULTS

The results in the 30 patients in this series are tabulated in Table I.

In 3 patients who had subsequent pregnancies there has been no recurrence of symptoms. One of these patients was delivered of twins.

TABLE I. SUMMARY OF RESULTS IN 30 PATIENTS

Type of result	Patients	
	No.	%
Complete relief	25	83.3
Marked improvement	3	10.0
Slight improvement	2	6.6
No relief	0	0.0
Worse than before	0	0.0

#### DISCUSSION

In a review published by Pyper<sup>4</sup> in 1957 it was stated that excision of the coccyx is likely to provide a cure in 45% of patients and to give worth-while relief in another 45%. Pyper further stated that 'failure of conservative treatment is not an essential prerequisite in recommending operation'.

The analysis of the results of sacrococcygeal arthroplasty indicate that it appears to be a reasonable alternative to the operation of coccygectomy. As far as is known this procedure has not previously been described in the literature. In this operation the anatomy of the area is largely retained.

#### SUMMARY

1. In this paper the operation of sacrococcygeal arthroplasty is proposed as a treatment for intractable coccydinia.
2. The technique of the operation is described. Special attention should be given to haemostasis.
3. Thirty patients on whom sacrococcygeal arthroplasty has been performed have been followed-up for periods varying from 6 months to 11 years. Successful results were obtained in 93.3%.

#### REFERENCES

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