COCCYGECTOMY
A review of thirty-seven cases
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INTRODUCTION
COCCYDYnia is a condition for which there are many forms of treatment. This is partly a reflection of the fact that coccydynia is a subjective complaint and therefore difficult to assess, indeed it can probably only be assessed subjectively. Coccydynia usually responds to conservative measures, but when these measures fail coccygectomy has been reported to be successful. However, it is our impression that some surgeons are still reluctant to recommend operative treatment for coccydynia. It was therefore thought worthwhile to undertake a further study of this operation to try to ascertain the results of operative treatment for coccydynia and especially to try to identify possible causes of failure.

MATERIALS AND METHODS
The records were obtained for fifty-two patients who had coccygectomy carried out at Musgrave Park Hospital, Belfast and Altnagelvin Hospital, Londonderry during the period 1969-1977. All patients were asked to attend for review in order to obtain their subjective evaluation of the effect of the operation upon the coccygeal pain. Those patients who did not attend were asked to complete a questionnaire. The charts were studied with reference to the length of time the patient had symptoms prior to surgery, whether there was any history of injury before the onset of symptoms, of any previous lumbar backache or any reference to abnormal mental behaviour. Details of any previous conservative treatment were also noted.

RESULTS
Thirty-two patients were reviewed and five completed a questionnaire. There were thirty-three women and four men, and the mean follow-up was 5.5 years with a range of one to nine years. The patients were asked to select from four categories giving their own assessment of the pain relief given by the operation. These categories were complete relief, improvement, no relief, and worse than before the operation. There were ten patients who found complete relief and 17 patients who found improvement following the operation, these 27 patients were categorised as having had successful operations. The six patients who had no relief and the four patients who were worse following the operation were all categorised as having had unsuccessful operations.

The age of the patients at operation ranged from 17 to 53 years with an average age of 34 years. Three of the 14 patients under the age of 30 had unsuccessful operations and seven of the 23 patients over the age of 30 had unsuccessful operations.

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In this series the period of time that patients had symptoms before operation varied from three months to 14 years with a mean of four years. Twenty-six patients had symptoms for less than four years, five of these had unsuccessful operations, whereas of the eleven patients who had symptoms for more than four years, five were unsuccessful.

Coccygectomy was carried out in only four male patients, two of whom had unsuccessful operations. One of these had a gunshot wound to the lumbar spine with referred pain to the coccyx. The other had increasing pain after his coccygectomy and was later shown to have a spinal tumour, which on removal led to the relief of all symptoms.

Although all patients had conservative treatment in the form of a rubber ring or baths, only eight had injection with manipulation and a further 12 injection alone. Coccygectomy was more successful in those patients who had not had prior injection or manipulation. Twenty-two of the 37 patients had a definite history of injury or a difficult childbirth immediately preceding the onset of symptoms. Nine of the ten patients who had an unsuccessful operation had had an injury. Lumbar backache was present before operation in 20 patients, four of whom had unsuccessful operations. Only seven patients had a reference to abnormal mental behaviour in their hospital records and in only one was operation unsuccessful.

Radiological examination was undertaken at review in 23 cases. It was found that in 11 cases the coccyx had not been totally removed. Three of these 11 had unsuccessful results compared to two unsuccessful results in the 12 who had a complete coccygectomy.

DISCUSSION

Coccydynia is a condition characterised by pain in the coccygeal area associated with local tenderness on rectal examination. Radiological examination is frequently normal. There are many theories as to the causation of coccydynia and these are divided into referred causes due to nerve root irritation in the lumbar region and local causes including trauma to the coccyx, sacrococcygeal arthritis or strain of the ligaments attached to the coccyx. Although there are many theories suggesting causes, there is little factual evidence to prove these theories, though recently there have been two reports of glomus tumour in the coccygeal body being responsible for the coccydynia. It is this lack of evidence and the lack of objective measurement of coccydynia that makes it difficult to give clear indications for surgery.

Gardner gave two indications for surgery (1) sacrococcygeal arthritis or (2) deformity of the coccyx and qualified this by stating that before surgical intervention pain should be resistant to all forms of conservative therapy and should be disabling in character. In this study only ten patients had radiological evidence of arthritis or deformity and seven of these patients were offered surgery without prior injection or manipulation because the surgeon considered that coccydynia due to these two factors was unlikely to respond to conservative measures. Twenty other patients were offered surgery because of failure of injection or manipulation. The other seven patients were offered surgery because they had their symptoms for so long (seven to fourteen years). In Northern Ireland, conservative measures in the form of advice, baths, rubber rings, injection or manipulation were generally prescribed before offering surgery. In a preliminary study of 53 patients who had been treated
for coccydynia in one orthopaedic clinic during the same period (1969-1977) as this study, only six eventually had excision of the coccyx.

In this retrospective study 73 per cent of patients had a successful operation. There were ten patients in whom the operation was a failure and it was these ten patients who were studied in greater depth to try to ascertain reason for failure. However, it was not possible to give clear contraindications to surgery, although several factors were of interest.

There is a feeling amongst some orthopaedic surgeons that coccydynia is predominantly a neurotic symptom. In this study of patients selected for operation, symptoms suggestive of psychoneurosis were infrequent and even in those patients where these symptoms had been noted, the operation was more often successful than not.

Although the overall figures show that the presence or absence of low lumbar backache preoperatively made little difference to the overall result, four of the failures had lumbar lesions with referred coccydynia. One was later shown to have a spinal tumour, two later had excision of prolapsed intervertebral discs and one a gunshot wound to the lumbar spine. Low lumbar backache is a very common symptom and should not by itself be a contraindication for surgery, however if there are signs of lumbar root irritation then coccygectomy is probably not indicated.

The results of a postoperative radiograph have not been reported before. This examination was carried out at review because one patient in this study and one patient reported by Spence noted that their coccydynia was not relieved by initial coccygectomy, but gained relief following a second operation with excision of a further segment of coccyx. It is not surprising that incomplete coccygectomy may be carried out when the anatomy of the area is so variable, with the coccyx consisting of three, four or five segments with a variable amount of fusion. We did find it surprising that our figures showed that it made little difference to the success or failure of the operation as to whether the coccyx was totally removed or not. This again is a reflection of the paucity of real evidence as to the causation of coccydynia. Were it known that the pain was arising from the sacrococcygeal joint, the coccyx, or the ligaments attached to the coccyx, then we would be able to advise total coccygectomy or partial coccygectomy or simply release of the ligaments. Until then one must still advise a total coccygectomy. In this study three of the failures did not have a total coccygectomy. It is thought that the disturbance in these cases was in the sacrococcygeal joint itself and indeed this was confirmed by the radiographs of these three patients, taken at review; which showed sacrococcygeal arthritis.

If the four patients with referred pain and the three failures who had incomplete coccygectomy are eliminated, this leaves 27 successful cases out of 30—a success rate of 90 per cent which compares favourably with previous series where the failure rate was 11 percent.1, 10, 11

SUMMARY

Thirty-seven patients with coccydynia were treated by coccygectomy because conservative measures had failed or because they had arthritis of the sacrococcygeal joint or deformity of the coccyx. The operation failed to relieve pain in ten, four of these had evidence of lumbar root irritation and three had undergone an incomplete coccygectomy. There were only three failures among those patients in who strict criteria were followed in selection for the operation and in whom a total coccygectomy was undertaken.

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