ACTA
ORTHOPAEDICA
et
TRAUMATOLOGICA
TURCICA

Author's translation
Acta Orthop Traumatol Turc 2007;41(4):277-280

Coccygectomy in patients with coccydynia

Koksidinili hastalarda koksiks eksizyonu

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Amaç: Koksidini nedeniyle uygulanan konservatif tedaviye yanıt alınamayan olgularda koksiks eksizyonu sonuçları değerlendirildi.

Çalışma planı: En az bir yıl süreyle uygulanan konservatif tedaviden yarar görmeyen 24 hastaya (23 kadın, 1 erkek; ort. yaş 33; dağılım 21-60) koksiks eksizyonu uygulandı. Hastaların ortalama yakınma süresi 30 ay (dağılım 14-144 ay); konservatif tedavi süresi ortalama 18 aydı (dağılım 12-32 ay). On sekiz hastada travma öyküsü varken, altısında neden saptanamadı. Hastalar radyografik olarak Postacchini-Massobrio sınıflamasına göre gruplandırıldı. Buna göre, dört hasta (%16.7) tip 1, 16 hasta (%66.7) tip 2, üç hasta (%12.5) tip 3, bir hasta (%4.2) tip 4 idi. Koksiks eksizyonu Key'in tanımladığı tekniğe göre yapıldı. Tam eksizyon olup olmadığı radyolojik olarak kontrol edildi. Bütün hastalara ameliyat sonrası 72 saat ikili antibiyotik tedavisi uygulandı. Hastalar ortalama 28 ay (dağılım 12-70 ay) takip edildi. Fonksiyonel değerlendirme, ameliyat öncesine göre ağrılı bölgedeki rahatlama miktarı, yaşam kalitesinde düzelme, oturur pozisyonda ağrının şiddeti ve günlük yaşam aktivitesindeki ağrı düzeyi dikkate alınarak yapıldı.

Sonuçlar: Hiçbir hastada eksizyon için tekrar ameliyat gerekmedi. On üç hastada (%54.2) mükemmel, yedi hastada (%29.2) iyi, iki hastada (%8.3) orta, iki hastada kötü sonuç elde edildi. Mükemmel veya iyi sonuç alınan hastaların oranı %83.3 bulundu. Ameliyat sonrası dönemde iki hastada gelişen enfeksiyon uygulanan antibiyotik tedavisi ve yara bakımı sonrasında düzeldi. Hiçbir hastada rektum yırtığı veya rektum prolapsusu görülmedi.

Çıkarımlar: Konservatif tedaviye yanıt alınamayan koksidinili hastalarda koksiks eksizyonu başarılı bir tedavi yöntemidir.

Anahtar sözcükler: Koksiks/cerrahi; bel ağrısı/etyoloji.

Objectives: The results of coccygectomy were evaluated in patients with coccydynia unresponsive to conservative treatment.

Methods: Twenty-four patients (23 females, 1 male; mean age 33 years; range 21 to 60 years) underwent coccygectomy for coccydynia unresponsive to conservative treatment of at least a year. The mean symptom duration was 30 months (range 14 to 144 months), and the mean length of conservative treatment was 18 months (range 12 to 32 months). Eighteen patients had a history of trauma and six patients were considered idiopathic. According to the radiographic classification of Postacchini and Massobrio, four patients (16.7%) were type 1, 16 patients (66.7%) were type 2, three patients (12.5%) were type 3, and one patient (4.2%) was type 4. Coccygectomy was performed according to the technique described by Key and complete excision was confirmed by radiologic examination. All the patients received postoperative dual antibiotic therapy for 72 hours. The mean follow-up was 28 months (range 12 to 70 months). Functional evaluations included the extent of relief in the painful area, improvement in quality of life, the severity of pain in the sitting position, and pain score during daily activities.

Results: None of the patients required reoperation for incomplete excision. The results were excellent in 13 patients (54.2%), good in seven patients (29.2%), moderate in two patients (8.3%), and poor in two patients. Excellent and good results amounted to 83.3%. The only postoperative complication was infection in two patients, which was treated with antibiotics and appropriate wound care. None of the patients had rectal rupture or prolapse.

Conclusion: Coccygectomy is a successful treatment option in patients unresponsive to conservative treatment for coccydynia.

Key words: Coccyx/surgery; low back pain/etiology.

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Submitted / *Başburu tarihi:* 25.07.2006 **Accepted / *Kabul tarihi:*** 18.08.2007

Coccyx is a conic-shaped section of the vertebral column. It is composed generally of four segments, the number of which increases to five in rare cases. These segments are mobile during childbirth. Distal segments fuse during childhood, whereas proximal segments fuse during early adulthood. Although it is seen to fuse on rare occasions, sacrococcygeal joint stays mobile during lifetime.[1]

Coccydynia is the term used to define the pain around the coccyx. It is typically exhibited as discomfort in sitting position. Coccydynia was first defined in 1859 by Simpson as a painful state of the coccyx region.[2]

Patients with coccydynia are mostly female.[2-5] Many patients with coccydynia exhibit a history of trauma as an etiologic factor. However, coccydynia can also develop due to pathological conditions in this region such as chordoma, giant cell tumor, intradural schannom, perineural cyst, intraosseous lipoma and infection.[3] In some cases, coccydynia develops idiopathically without trauma or pathological findings.[6] In previous studies, development of coccydynia induced by coccyx hypermobility was observed via dynamic radiography technique.[5,7]

Numerous conservative methods of treatment have been described in literature, including resting, hot baths in sitting position, drug treatment, use of ring-shaped cushions, physiotherapy, massage, radiotherapy, psychotherapy, sacral rhizotomy, manipulation, epidural injection and local injection.[3]

In cases where conservative treatment is unsuccessful, coccygectomy can be implemented as a surgical treatment.

In our study, surgical treatment implemented for patients unresponsive to conservative treatment is addressed.

Patients and method

Between March 2000 and June 2005, 24 patients (24 females, 1 male; mean age 33 years; range 21 to 60 years) underwent coccygectomy for coccydynia unresponsive to conservative treatment of at least one year. The conservative treatments previously used for the patients are summarized in Table 1. The mean length of conservative treatment was 18 months (range 12 to 32 months).

For each patient, detailed history was collected and clinical examination was performed. Plain radiographies of pelvis and lumbosacral vertebra and coccyx radiographies were radiographically evaluated. The mean symptom duration was 30 months (range 14 to 144 months).

Eighteen patients had a history of trauma and six patients were considered idiopathic. Six patients exhibiting continuous pain without a history of trauma underwent magnetic resonance imaging, which revealed no additional pathologies.

To determine coccyx instability, external and internal physical examination was carried out on the sacrococcygeal region. All cases demonstrated mobility and pain in distal coccyx.

Patients were grouped according to Postacchini and Massobrio classification.[8] According to this method of classification, the angle between the coccygeal region and proximal sacrococcygeal region distal to the painful joint is measured and absence of angulation is classified as type 1, angulation less than 90 degrees as type 2, angulation of 90 degrees as type 3 and angulation exceeding 90 degrees as type 4. Four patients (16.7%) were type 1, 16 patients (66.7%) were type 2, three patients (12.5%) were type 3, and one patient (4.2%) was type 4.

Coccygectomy was performed according to the technique described by Key. Patients were prepared

Table 1. Types of conservative treatment preoperatively implemented

Conservative treatment	Number	Percentage
Non-steroid inflammatory (for at least one year with intervals) and hot bath in sitting position (for at least 3 months)	24	100.0
Cushion use (ring-shaped cushion for at least 3 months)	18	75.0
Intradiscal injection (Citanest 1 ml-Diprospan 1 ml; 3 injections for patients accepting at least 1 injection, 1 inj/week)	11	45.8

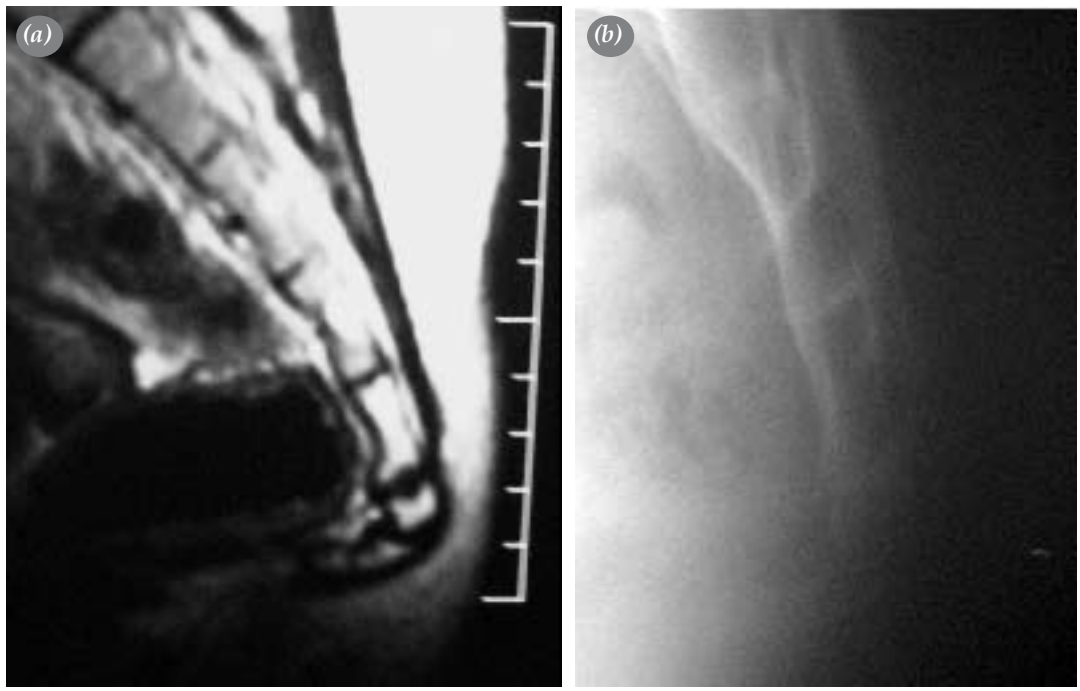

Figure 1. Magnetic resonance image **(a)** and postoperative radiography **(b)** of a case.

in prone position. An approach of longtidunal incision over the coccyx along the midline was used. All mobile coccyx and/or sacrococcygeal segments were removed.[2] Complete excision was confirmed by radiologic examination (Figure 1). None of the patients required reoperation for incomplete excision. All patients received postoperative dual antibiotics therapy (cefazoline 2 gr/day, aminoglycoside 160 mg/day) for 72 hours. No cushions were used during the postoperative period. Patient follow up was performed over a mean duration of 28 months (range 12-70 months) via physical examination and interviewing. Following characteristics were examined for functional evaluation.[2]

Relief level in the painful region compared to preoperative condition (4 levels).

Improvement in quality of life (4 levels).

Severity of pain in sitting position (0-100 point visual analogous scale) (0 point - no pain, 100 points - severe pain).

Pain level during daily activities (0-10 points).

An excellent result is considered to be represented by more than 75% relief at surgical wound, more than 75% improvement in quality of life, pain in sitting position less than 20 points according to GAS and pain level during daily activities in the range of 0 to 2 points are considered to represent; a good result is considered to be represented by 50-75% postoperative pain relief, 50-75% improvement in quality of life, GAS point in the range of 20 to 30 and daily activity point in the range of 1 to 3. Regardless of other criteria, pain relief in the range of 25-50% and less than 25% are considered as average and poor results, respectively.

Results

None of the patients demonstrated bad scar tissue at surgical wound. Two patients developed postoperative infection, which was rectified via antibiotics therapy and appropriate wound care. No patients demonstrated rectum rupture or rectum prolapsus. The results were excellent in thirteen patients (54.2%), good in seven patients (29.2%), moderate in two patients (8.3%), and poor in two patients. Excellent and good results amounted to 83.3%.

Discussion

Coccydynia can develop both following traumatic conditions such as falling on coccyx or childbirth and due to inflammatory osteoarthritis of sacrococcygeal-intercoccygeal segments, pathological factors or hypermobility.[4,5-7]

Postacchini and Massobrio[8] argued that coccydynia can develop in patients with no history of trauma because of developmental hypermobility between coccygeal segments. Maigne et al[5] reported hypermobility or subluxation between intercoccygeal segments in 53% of the patients admitted with coccydynia. In our study, as is the case in similar studies, traumatic coccydynia is predominant among participating patients. Even though radiologic differences can be associated with the clinic in service, pathological conditions such as tumor and infection should be excluded before the determination of the routine treatment to be implemented for patients with non-traumatic coccydynia.

Men have a rare incidence of coccydynia. This situation has been associated with the differences between male and female pelvis anatomies. The patients participating in our study are also predominantly female.

Conservative treatment is the treatment of choice for patients with coccydynia. Successful results are obtained with conservative treatment in 90% of patients. For patients who were unresponsive to conservative treatment and subsequently underwent surgery, Wray et al[3] and Maigne et al[5] reported successful results with percentages of 91% and 83.3%, respectively.

Infection following surgical treatment is reported as the most frequently observed complication with incidences ranging between 6% and 27%. In coccygectomy, the existing incision area is regarded as clean-contaminated tissue. For the prevention of surgical wound infection, prophylactic antibiotics therapy is suggested. Wood et al[2] compared a group of patients receiving antibiotics therapy with a control group and reported that a decrease of 16.6% was obtained in infection rate via the antibiotics therapy. Moreover, some publications reported rectum prolapsus and trauma as complications and emphasized the need for experience in the technique used for the reduction of these complications.[9] In our study, postoperative administration of prophylactic antibiotics was used for 72 hours with an infection rate of 8.3%. The cases exhibiting infection were treated with appropriate antibiotics administration and wound care.

Consequently, although conservative treatment is the treatment of choice for patients with coccydynia, for patients unresponsive to conservative treatment, coccygectomy is a successful method of treatment delivering a high level of patient satisfaction.

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