

coccygodynia

Pathoanatomy

- Greek The terminal portion of the spine to the beak of a cuckoo.
- Consists 3-5 segments
- The disc spaces in this region are extremely variable. Intact discs, discs with extensive clefts,
 - discs with cystic or fibrocystic changes and discs replaced by synovial joints have all been
 - reported.
- Balain et al⁸ reported that of 38 patients who underwent coccygectomy for coccydynia, ten had at least two discs or moving joints, and 11 had only one disc or moving joint at histology.

Table I. Classification of coccydynia based on aetiology

- A: Based on aetiology
 - 1. Idiopathic
 - 2. Traumatic

- B: Based on pathology
 - 1. Degeneration of the sacrococcygeal and intercoccygeal disc and joints
 - 2. Morphology of the coccyx: type II, III, IV, presence of a bony spicule and coccygeal retroversion
 - 3. Mobility of the coccyx: hypermobile or posterior subluxation
 - 4. Referred pain: lumbar pathology or arachnoiditis of the sacral nerve roots, spasm of the pelvic floor muscles and inflammation of the pericoccygeal soft tissues
 - 5. Others: neoplasm, crystal deposits, infections
- C: Somatisation or neurotic

Postacchini

Type Coccygeal morphology

- I Curved gently forward
- II Has a marked curve with the apex pointing straight forward
- III Angled forward sharply between first and second or second and third segments
- IV Anteriorly subluxated at the level of the sacrococcygeal joint or first or second intercoccygeal joint
- V Coccygeal retrover

- The most common cause of coccydynia is single direct axial trauma such as a fall directly onto the coccyx or, as during the post-partum period, due to a subtle form of cumulative trauma that occurs due to sitting awkwardly.
- Schapiro,¹¹ in 1950, described the disorder as ‘television disease’, because poor postural adaptation was thought to be an important predisposing factor of coccydynia.
- Maigne et al reported that 36 of 51 patients had a history of direct trauma, and Pennekamp et al⁷ reported a 50% incidence of direct trauma.
- Depending on the severity of the trauma, patients experience strain to the pelvic floor muscles, mild distortion without bony or ligamentous damage

- Postacchini suggested that the morphology of the coccyx may have a role in the aetiology of coccydynia. Based on the classification of morphology, type II, III and IV patients were at higher risk of developing coccydynia.
- A small palpable bony excrescence on the dorsal aspect of the coccyx, termed a spicule, along with the presence of a small pilonidal sinus pit. The spicule was identified in 14%. [Maigne 12]. According to Maigne, spicules cause irritation of the coccygeal region when the patient is sitting, especially in immobile coccyges, which results in the development of chronic adventitial bursitis.
- Maigne coccygeal mobility into 4 groups:
- A. luxation-backward displacement of the mobile portion of the coccyx when the patient is sitting;
- B. hypermobility, where coccygeal flexion exceeds 25° when the patient is sitting;
- C. immobile coccyx with < 5° of flexion or extension when the patient is sitting;
- C **Normal mobility**, where coccygeal mobility is between 5° and 25°.
- Luxation and hypermobility are abnormal by themselves, and the immobile coccyx associated with spicules due to the formation of bursa is an anatomical cause of coccydynia.
- Marmor¹⁵ expressed the opinion that coccydynia was due to coccygitis, a condition similar to epicondylitis of the elbow.

- Bayne : 41% of patients with idiopathic coccydynia and 44% with traumatic coccydynia had objective evidence of degeneration.
- However, unlike lumbar discs, coccygeal discs do not develop osteophytes/ syndesmophytes because they do not sustain compressive loads.
- Reported that 15- 77% of patients had co-existing lumbar spine disorders
- Bremer²² was the first to describe the association of neurosis with coccydynia.

Clinical features

- Coccydynia constitutes less than 1% of all non-traumatic complaints of the spine.
- Women are five times more commonly affected than men.
- Called it Thiele syndrome.
- This includes the main symptoms of tenderness and pain, or an ache localised in the region of the lower sacrum, the coccyx
- The severity of the pain is dependent on various predisposing factors, such as the duration of time spent sitting.
- Women report an exponential increase in pain during the premenstrual period.
- Dyspareunia and piriformis syndrome have been infrequently associated with coccydynia.

Radiological features

- Static standard radiographs
- CT
- Routine blood tests
- Coccygeal mobility based on a comparison of static and dynamic lateral films with the hips flexed while the patient sat on a hard stool and extended the spine, producing more pain. The angles of sagittal pelvic rotation, the angle of mobility and the angle of incidence were calculated. The angle of sagittal rotation was measured

Based on the mobility of the coccyx, it was classified as normal, subluxed, immobile or hypermobile.

- Provocative discography : Maigne first to describe coccygeal discogram

Treatment options

- 1. use of laxatives,
 - 2.NSAID
 - 3.Hot baths, ring-shaped cushions, ergonomic adaptations to physical therapy, intrarectal massage
 - 4.Manipulation,
 - 5.sacrococcygeal injections,
 - 6.ganglion impar blocks,
 - 7. radiofrequency thermocoagulation,
 - 8.psychotherapy,
 - 9.coccygeoplasty to coccygectomy (partial or complete).
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- Conservative management is successful in approximately 90% of patients
 - Ergonomic adaptation is commonly used.

- Powers⁵ stated that coccygectomy fell into disrepute because it was used inappropriately.. A midline vertical incision over the coccyx is developed down to the bone, and includes exposure of the sacrococcygeal joint. The dissection is carried distally to expose the tip of the coccyx. A subperiosteal plane is developed on the anterior surface, taking great care to stay clear of the rectum. The sacrum is amputated just proximal to the sacrococcygeal joint, and the entire coccyx with the sacrococcygeal joints is lifted free and excised.
- Gardner³⁴ described an improved technique which does not involve the most hazardous step of Powers' approach of placing a finger in the rectum, which leads to increased risk of infection and the development of a blind plane for the rectum which may result in rectal injury. The technique is based on a modification of the Kraske procedure for treating cancer of the rectum with preservation of the anal sphincter. According to Gardner, a 7.5 cm incision extends from just proximal to the sacrococcygeal joint into the buttock crease, care being taken to prevent it extending into the peri-anal region. The incision is brought down to the fascia and insertion of the gluteus maximus directly over the bone. The coccygeus vessels are ligated. The tip of the coccyx is elevated by blunt dissection. Then, the tip of the coccyx is separated from the external sphincter by sharp dissection.

- Careful patient selection appears to be the key to success. Various clinical and radiological pointers predict a good outcome after surgery. Coccygectomy for coccydynia due to changes in the shape of the coccyx, the presence of a bursa, and a good response to injection has an increased chance of an excellent result after surgery.
- Conservative treatment in the form of massage, injection and ganglion impar blocks appear to play a vital role in the management of coccydynia. Coccygectomy is effective in patients with coccydynia, especially for those with specific indications. Even though there appears to be a psychological issue associated with diagnosis, there are studies that report good or excellent results for patients with the appropriate indications undergoing coccygectomy.

Sacral Insufficiency fracture [SIF]

Osteoporos Int (2006) 17:1716–1725

- Background Sacral insufficiency fractures (SIFs) are often overlooked in elderly patients presenting with low back and pelvic pain following no or minimal trauma.
- Stress fractures that occur in bones with reduced mineral content and elastic resistance.
- SIFs are set to become an important clinical entity of both social and economic significance as the Western population ages.
- Subtle clinical presentations and signs coupled with radiographic findings that can mimic other conditions
- MRI/CT/Bone Scan

- The vast majority of SIFs occur in zone 1.
- The fractures run vertically, parallel to the sacroiliac (SI) joint, approximately in line with the lateral margins of the lumbar vertebrae and the vertical loading axis.
- The majority of SIFs (over 90%) occur in elderly women where osteoporosis is prevalent.
- In younger population: suspect secondary osteoporosis
- Dexa and Endocrinologist
- The most frequently associated stress fracture is that of the ipsilateral, contralateral or both pubic rami [75% of cases]

- [Eur Spine J. 2012 Feb;21\(2\):240-6. Epub 2011 Aug 6.](#)
- **MRI findings are more common in selected patients with acute low back pain than controls?**
- [Hancock M, Maher C, Macaskill P, Latimer J, Kos W, Pik J.](#)
- **Source**
- [Faculty of Health Sciences, University of Sydney, PO Box 170, Lidcombe, Sydney, NSW 1825, Australia. mark.hancock@sydney.edu.au](#)
- **Abstract**
- **PURPOSE:**
- [The purpose of this study is to investigate if lumbar disc pathology identified on MRI scans is more common in patients with acute, likely discogenic, low back pain than matched controls.](#)
- **METHODS:**
- [We compared rates of MRI findings between 30 cases with low back pain and 30 pain-free controls. Cases were patients presenting for care with likely discogenic low back pain \(demonstrated centralisation with repeated movement testing\), of moderate intensity and with minimal past history of back pain. Controls were matched for age, gender and past history of back pain. Cases and controls underwent MRI scanning which was read for the presence of a range of MRI findings by two blinded assessors.](#)
- **RESULTS:**
- [The presence of disc degeneration, modic changes and disc herniation significantly altered the odds of a participant being a case or control. For example subjects were 5.2 times more likely to be a case than a control when disc degeneration grade of \$\geq 3\$ was present, and 6.0 times more likely with modic changes. The presence of a high-intensity zone or annular tear was found to significantly alter odds for one assessor but not the other assessor.](#)
- **CONCLUSION:**
- [MRI findings including disc degeneration, modic changes and herniation are more common in selected people with current acute \(likely discogenic\) low back pain than in controls without current low back pain. Further investigation of the value of MRI findings as prognostic factors and as treatment effect modifiers is required to assess the potential clinical importance of these findings.](#)
- [PMID](#)

