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Case Study

A Singal Case Studyon Coccygodynia

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ABSTRACT

Pain in the coccyx region is known as coccydynia or coccygodynia. Coccygeal pain has been documented since the 16th century, according to Simpson, coccygeal pain has been recognised for hundreds of years, treating it can be challenging and occasionally contentious due to the complex nature of coccygeal pain. Its genesis is influenced by numerous physiological and psychological factors. With or without conservative treatment, most occurrences of coccydynia recover within weeks to months, but in a small number of people, the pain can last a long time and be incapacitating. Female gender and obesity have been linked to an increased chance of acquiring the condition. The anatomy, physiology, diagnosis and therapy of coccydynia are briefly discussed in this Study. For individuals with intractable coccyx discomfort, a multidisciplinary strategy including physical therapy, ergonomic modifications, drugs, injections, and potentially psychotherapy has the best chance of recovery.

A 26 years old Female patient came in OPD with Symptoms of Pain and tenderness in coccyx region, aggravated with sitting position. In past history a patient is fall down from vehicle in direct vertical position, at this incidious mild discomfort in lower back region, after that gradually increase pain in coccyx region within two days. Patient could not able to seat proper and pain remain constant. So, she came to Govt. Akhandanand Hospital for ayurvedic treatment. The patient was treated with ayurvedic medicines Yogaraj Guggulu, Dashmoolkwath, Tab.bocomo and advise to take sitz bath with luke warm water and use wedge shape cushion on sitting position. The patient was advised to follow up initially after 7 days and later after every 15th days. After 7 days there were mild pain and no tenderness. After that pain gradually decrease. The pain was completely gone on the third follow up and no any other complaints related to coccydynia.

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INTRODUCTION

Coccyx pain is known by multiple synonym including coccydynia, coccygodynia, coccyalgia and tailbone pain. The coccyx is Greek word that means the beak of a cuckoo birdⁱ as the side view of the tailbone resembles the side view of a cuckoo bird's beakⁱⁱ. The plural of the coccyx is coccyges or coccyxes. Simpson introduced the term coccydynia in 1859ⁱⁱⁱ Foye has referred to coccyx pain as the lowest (most inferior) site of low back pain^{iv}. Coccydynia may be functional or organic in origin. Both physical and psychological factors can contribute. The condition five times more common in female than males. Teens and Adults are more likely to present with coccygeal pain as compared to children^v. A high incidence of the disorder has also been reported in debilitated elderly

patient. Patient with symptoms of coccygodynia usually seek the opinions of numerous orthopedic surgeons, gynecologist, neurologist, colon and rectal surgeons. Clinician should understand the wide variety of option available to diagnosis and ^{vi}treat coccydynia. Patient should be referred to a specialist if the etiology remains unclear or if the patient fails to get adequate relief. Many cases are self-limiting and resolve with little or no medical treatment, other cases are notorious persistent are challenging to treat, and are associated with severe and disabling chronic pain.

ANATOMY:

The Coccyx is the terminal triangular bone of the spine. Although the singular term "tailbone" implies that this is a single bone, it actually consists of 3 to 5 separate vertebral

bodies, with substantial variability regarding whether they are fused or not.

The coccyx articulates with the sacrum through a sacrococcygeal joint (including a fibrocartilaginous intervertebral disc and bilateral zygapophysial [facet] joints). The sacrococcygeal and intra-coccygeal joints allow for a modest amount of coccygeal movement^{vii}. In addition, the first coccygeal segment contains rudimentary articular processes called the coccygeal cornua that articulate with the sacral cornua. The lower part of the filum terminale, also called the coccygeal ligament, inserts onto this first segment.

These ligaments and muscles help support the pelvic floor and also contribute voluntary bowel control. The nerves of the coccyx include somatic nerve fibers and the ganglion impar, which is the terminal end of the paravertebral chain of the sympathetic nervous system.

Surface attachment:

- On the anterior surface of the coccyx, muscles attachment: Levator ani, iliococcygeus, coccygeus, and pubococcygeus.
- On the posterior coccygeal surface, the gluteus maximus is attached. Also attached to the coccyx are the anterior and posterior sacrococcygeal ligaments, which are a continuation of the anterior and posterior longitudinal ligaments.
- Bilateral attachments to the coccyx include the sacrotuberous and sacrospinous ligaments^{viii}.
- Besides being an insertion site for these muscles and ligaments, the coccyx is also attached to the anococcygeal raphe (which extends from the anus to the distal coccyx, holding the anus in its position within the pelvic floor).
- Despite its small size, the coccyx has several important functions:
- Functionally, a tripod is formed by the bilateral ischial tuberosities (at the right and left inferior buttock) and the coccyx (in the midline). This tripod supports weight-bearing in the seated position.^{ix}The plural of the coccyx is coccyges or coccyxes.
- Structurally, it forms the posterior boundary in a triangle of structures that support the anus.

CAUSES:

Factors related to the high risk of developing coccydynia are female sex and obesity^x, as body mass index may affect how a person sits or the amount of weight placed upon the coccyx. Coccydynia is five times more common in females than in males. Rapid weight loss has been reported to be a risk factor for coccydynia due to the loss of the cushioning effect of adipose in the buttock region. Other reported risk factors include osteoarthritis, osteomyelitis, and contact sports.

1. Traumatic

- Fall in sitting position (Direct vertical)

- Repetitive microtrauma, prolonged sitting on hard, narrow or uncomfortable surface.

- During child birth

2. Non-Traumatic:

- Infection (Including both soft tissue abscess and Osteomyelitis)
 - Malignancy (chordoma)
 - Degenerative joint
 - Disc disease
 - Abnormal mobile coccyx: Hypermobility, Hypomobility (Excessive movement of coccyx during weight bearing or while sitting)
3. A Distal coccyx bone spur (spicule) may cause pain when the skin is pinched beneath the spur during sitting.
 4. Coccydynia can be a referred pain due to lower GI or Urinary track disorder.
 5. Non organic causes^{xi}: Somatization disorder
Psychological disorder

Sign and Symptoms:

- Localised pain over the coccyx (Tail-bone pain) may be acute onset or insidious onset.
- Coccydynia is typically worse while sitting (Especially while sitting in a partly reclined (backward leaning) position.)
- The pain is usually exacerbated by prolonged sitting and cycling^{xii}. Standing up from the seated position may cause a temporary but severe increase in coccyx pain. Other exacerbating factors may include standing for a long time, sexual intercourse, and defecation.

Physical examination

- Inspecting the overlying skin for any signs suggestive of infection or other differential diagnoses such as pilonidal sinus and hemorrhoids.
- External palpation usually reveals localized tenderness focally over the coccyx.
- Per rectal examination may be useful in some patients to evaluate the degree of coccygeal mobility and will typically elicit pain when manipulating the coccyx.
- Beyond the evaluation of the coccyx itself, it is often helpful to assess for other sources of musculoskeletal pain by performing a physical examination of the sacroiliac joints, ischial bursae, and piriformis muscles.

DIFFERENTIAL DIAGNOSIS

The following conditions can result in pain in the coccyx region that should be differentiated from coccydynia:

- Sacroiliac joint pain or inflammation
- Pilonidal cyst with abscess or sinus
- Sciatica
- Hemorrhoids
- Shingles of the buttocks or other forms of infection
- Piriformis syndrome.
- Malignancy, e.g., chordoma or chondrosarcoma
- Pelvic floor muscle pain

INVESTIGATION:

Standard radiographs^{xiii}:

- AP radiographs can reveal coccyx scoliotic (lateral deviation) deformity.
- Lateral views are always indicated as coccyx curvature can be classified into four different types:
 - Type I: coccyx is slightly curved forward.
 - Type II: coccyx is pointed straight forward.
 - Type III: coccyx has a sharp forward angulation.
 - Type IV: coccyx shows subluxation at the sacrococcygeal or the intercoccygeal joint.

From the lateral radiographs, the examiner can assess the intercoccygeal angle, which is the measured angle between the first and last segment of the coccyx.

Computed tomography scan (CT) of a normal adult coccyx shows variability in the fusion of the sacrococcygeal and intercoccygeal joints. Female coccyges are more often shorter, straighter, and more retroverted. However, these anatomic findings should be interpreted in correlation with a thorough history and detailed clinical examination before determining whether the findings are (or are not) the cause of the patient's pain.

Magnetic resonance imaging (MRI) can be used to assess the anterior curvature of the coccyx, the fusion of the sacrococcygeal and intercoccygeal joints, as well as the presence of a distal coccyx bone spicule (spur). These anatomical findings can either be a precipitant or a consequence of coccydynia. Overall, MRI can be a helpful diagnostic test for patients with coccydynia. MRI can also assist in screening for local malignant and nonon-malignant tumors.

Coccygeal discogram: This involves injecting contrast and local anesthetic into the sacrococcygeal region to determine the specific site of pain. It can serve as a diagnostic and therapeutic procedure.

Nuclear medicine bone scan: This is typically only used in patients with coccydynia in whom a search for malignancy or infection (e.g., osteomyelitis) is warranted.

Routine blood tests: These studies may help in rare cases, such as when suspected etiologies include infection, malignancy, gastrointestinal or urogenital problems

TREATMENT:

Multiple Conservative treatment options are available for coccydynia. Conservative treatment is successful in 90% of cases and many cases resolve without medical treatment^{xiv}.

- Medication: NSAID, Analgesic drug, Local injection.
- Ergonomic adaptation – Doughnut or ring-shaped pillows, posture training, buttock strapping, Sitz bath and stool softening measures.
- Cushions on the patient's chair can make sitting more comfortable. Modified wedge-shaped cushions (coccygeal cushions) cut-out beneath the coccyx can result in the coccyx hovering over the empty area, thus resulting in less coccygeal weight-bearing and less coccygeal pain.

- Training patients to adopt proper sitting posture can correct poor postures that can be contributing factors.
- The application of heat and cold over the site also may be beneficial.
- Pelvic floor rehabilitation can be helpful for coccydynia that is associated with pelvic floor muscle spasms.
- Manual manipulation and massage can help relieve associated muscle spasms or ligament pain.
- Transcutaneous electrical nerve stimulation can be beneficial, employing either an external technique with 2 cutaneous probes or an internal technique with 1 cutaneous probe and 1 intrapelvic probe.
- Psychotherapy is indicated if an underlying nonorganic cause is suspected.
- For the few cases that do not respond to these conservative treatments, more aggressive treatments may be indicated like Blockade of ganglion of Walther^{xv}, Electrical spinal cord stimulation, Selective nerve root stimulation and Coccygectomy.

AYURVEDIC VIEW:

Vata is the causative factor of pain in body^{xvi}. The area below umbilicus is territory of *Vata*. It is mainly located in *Asthi*^{xvii} (Bone). Aggravation of *Vata* cause pain anywhere in body and if it is increased in *Asthi* it results in bone pain.

The end part of *Prishthavamsa* (spine) is called *Trika* (comprised of sacrum and coccyx) in *Ayurveda*. *Trikagraha* is the condition characterised by pain, stiffness and movement difficulty of *trika*.

In *Nidana Sthanam* Acharya *susruta* mentioned causes of *Bhagna* (fracture) in chapter no. 15 verse 3^{xviii}

Patana, Pidana, Prahara etc.

Kandbhagnalakhana which is *svayathu-bahulya*, *Sparsa-asahishunatva*, *Vividh-vedana-pradurbhava*^{xix}.

CASE STUDY

A 26 years old Female patient came in OPD with Symptoms of,

- Pain in coccyx region, aggravated with sitting position.
- Tenderness over coccyx region.

History of present illness: A patient fell down from vehicle in direct vertical position, at this incident mild discomfort in lower back region, after that gradually increased pain in coccyx region within two days. Patient could not sit properly and pain remained constant. So, she came to Govt. Akhandanand Hospital for ayurvedic treatment.

Past History: She had no history of any systematic disorder, any surgical history.

Family History: NAD

Clinical Examination:

Mild tenderness over coccyx region.

No other abnormality detected during the general and systemic examination.

Vital Parameters: Vital Parameters were Normal.

Material and Method:

Table 1:

Sr.No	Name of Drug	Dose of Drug	Time	Frequency	Anupan
1.	Yogaraj Guggulu	2 Tablet	After Food	2 times	Jala
2.	Dashmoolkwath	10ml	Before Food	2 times	-
3.	Cap. Bocomo	1 Capsule	After Food	2 times	Jala

Advices:

- Take Regular sitz bath with luke warm water for two times per day.
- Use the wedge-shaped cushion for sitting position.
- Patient trained for proper sitting posture.

1. Laghu yograjguggulu:

Shunthi (zinziber officinalis), pippalimula (piper longum), guggulu (commiphoramukul), chitrakamula (plumbago zeylanica), yavani (trachyspermumammi), krishnajiraka (carum carvi), vidanga (embliaribes), ajamoda (apiumgraveolus), haritaki (terminalia chebula), bibhitaki (terminalia bellerica), amalaki (Phyllanthus emblica), musta (Cyperus rotundus), maricha (piper nigrum).

2. Dashamulakwatha:

Bilva (aeglemarmlos), agnimantha (premnaserretifolia), shyonaka (oroxyllum indicum), patala (stereospermumsuaveolens), gambhari (gmelina arbota), brihati (solanum indicum), kantakari (solanum xenthocarpum), shalaparni (desmodiumgengeticum), prishniparni (urariapicta), gokshura (Tribulus terrestris).

3. Bocomo capsule:

Etract of Asthishrinkhala (cissus quadrangularis)

FOLLOW UP AND OUTCOME:

The patient was advised to follow up initially after 7 days and later after every 15th days. After 7 days there were mild pain and no tenderness. After that pain gradually decrease. The pain was completely gone on the third follow up and no any other complaints related to coccydynia.

Table 2:

3/7/2023	First visit to OPD, Prescribed Yogaraj guggulu, Dashmoolakwath and Bocomo capsule for 7 days and advised to Sitz bath and Ergonomic adaptation.
10/7/2023	1 st Follow up Visit: Decrease in pain and relived in tenderness. Continue with same conservative treatment.
17/7/2023	2 nd Follow up Visit: Pain gradually decreased. Continue with same conservative treatment.
2/8/2023	3 rd Follow up Visit : Pain completely gone and no any other complaints related to coccydynia.

DISCUSSION:

Coccydynia is common condition that is often self-limited and mild. The management of coccydynia should be carried out in a step wise approach with increasing invasiveness. Conservative therapy has 90% successful rate in the patient, but in some cases have resistant and recalcitrant response of conservative treatment .so, there coccygectomy or coccygeoplasty has shown excellent medium to long term outcomes. But they have high chance of complication and failure to relieve pain.

In this study have excellent result of conservative management with lifestyle modification.

In Ayurveda Ashti is Ashray for Vata Dosha and Vata is Causative Factor for Various type of pain in all over body, especially bony pain. Acharya Susruta described symptoms of Kandbhagna like shoth, Vividh-Vedana pradurbhava, Sparsh-asahiushnata. In this study any uses of medicine should have properties like Vatahara, Shothhara, Shulahara.

Yogaraj Guggulu and DashmoolaKwath have properties like Shulahara (analgesic), Shothhara (Anti-inflammatory), Anti-spasmodic, Rejuvenates and Strengthness to bony muscular

part of the body. Capsule Bocomo has extract of Asthishrinkhala. Chemical Composition of Asthishrinkhalahas Calcium -oxalate, phytosterol, triterpenoides, mucopolysachhariede. Which increase bone mineral density and accelerate the process of bone fracture healing. It have also Anti-inflammatory properties. Sitz bath reduced inflammation and pain with promote blood flow. Use Modified Wedgeshaped cushion (coccygeal cushion) relieved the pressure on the coccyx while sitting position.

The administered all above prescribed medicine and ergonomic adaptation have successful result within 30 days without any surgical or nerve stimulated intervention.

CONCLUSION:

Patient with coccydynia suffer a lot of stigma due to ignorance of the underlying etiology and association of neurotic symptoms in some patient. Multiple conservative treatment option are available for coccydynia like, physical therapy, ergonomic adaption, medication, injection and possibly psychotherapy leads to the greatest chance of success in the patient. Relatively simple measure are sufficient in most cases. Surgical coccygectomy generally is

not recommended due to^{xx} it has high complication rate and failure to relieve pain. Yogaraj guggulu, Dashmoolakwath, and Capsule Bocomo are effective in symptoms like pain

and tenderness in present case. This case shows the effectiveness of conservative management in Coccydynia without any adverse events.

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