

## Coccydynia and Disability in Postpartum Vaginal Delivery Women

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### Abstract

Coccydynia, also known as coccygeal pain, refers to pain or discomfort localized in the region of the coccyx. Common etiological factors include direct trauma to the gluteal area, repetitive microtrauma, and childbirth. Vaginal delivery, in particular, has been associated with damage to the sacrococcygeal ligaments. As the fetus traverses the birth canal, acute injury to the coccyx may occur, a condition that may be exacerbated by instrumental deliveries such as those involving forceps. While tension and damage to the ligaments attached to the coccyx are widely considered primary contributors to coccydynia in the postpartum period, its pathophysiology remains multifactorial. A study conducted in France on postpartum women experiencing coccydynia reported that approximately 7.3% of cases in females were associated with childbirth (Scholtes et al., 2003). In light of this finding, the present study aimed to investigate the prevalence of coccydynia and the associated levels of disability in women following vaginal delivery. An observational study was conducted at Saveetha Medical College and Hospital, Chennai, involving a sample of 378 postpartum women aged between 20 and 40 years who had undergone vaginal delivery. Coccydynia was assessed through clinical examination, and disability levels were evaluated using the Oswestry Disability Index (ODI), a validated tool for measuring disability related to lower back and coccygeal pain. Among the 378 participants, 196 women (51.9%) were found to have coccydynia. Of these, 96 women (49.0%) exhibited moderate disability, 69 women (35.2%) experienced severe disability, and 31 women (15.8%) were classified as crippled according to ODI scoring criteria. In conclusion, the findings of this study indicate that approximately 51% of postpartum women who delivered vaginally experienced coccydynia accompanied by varying degrees of functional disability. These results underscore the need for early identification and management of coccygeal pain in postpartum care to improve maternal health outcomes.

### Keywords

Coccydynia, episiotomy, forceps delivery, post-partum women.

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## Introduction

Coccydynia, or coccygodynia, refers to strain or discomfort in the coccyx region (Simpson, 1859). The coccyx is a triangular bone formed from three to five fused vertebral segments, with the largest segment articulating with the lowest sacral segment. As the terminal part of the spine, the coccyx is more frequently affected in females, approximately five times more than in males (Nathan et al., 2010). The most common causes of coccydynia include trauma to the gluteal region, repetitive microtrauma, or childbirth (Patijn et al., 2010).

Pain in the coccyx region may also be referred from other anatomical structures, including the lumbar spine, pelvic floor muscles, degenerative discs, neoplasms, bony spurs, cysts, or infections. In some instances, the etiology remains idiopathic (Howard et al., 2013). External trauma, often resulting from a backward fall, is a frequent cause and may lead to a bruised, dislocated, or fractured coccyx (Schapiro, 1950).

The first coccygeal segment contains primary articular processes called the coccygeal cornua, which articulate with the sacral cornua. Additionally, the lower portion of the filum terminale, known as the coccygeal ligament, inserts into this segment. The coccyx is bordered anteriorly by the levator ani muscle and the sacrococcygeal ligament. From anterior to posterior, the lateral edges serve as insertion sites for the coccygeus muscle, sacrospinous ligament, sacrotuberous ligament, and fibers of the gluteus maximus. Inferiorly, the iliococcygeus muscle tendon inserts at the tip of the coccyx. These muscular and ligamentous structures play a crucial role in supporting the pelvic floor and maintaining voluntary bowel control (Lirette et al., 2014).

The coccyx bears increased weight when a seated person leans backward. Consequently, many individuals with coccydynia adjust their sitting posture by leaning forward (flexing at the lumbosacral and hip joints) to redistribute pressure from the coccyx to the ischial tuberosities. Alternatively, some may lean to one side to reduce direct coccygeal pressure (Lirette et al., 2014).

Hormonal changes during pregnancy induce alterations in ligament laxity, including those affecting the coccyx. This physiological loosening facilitates childbirth but may also increase the risk of coccygeal injury or pain (Kaushal et al., 2005). Vaginal delivery is often associated with damage to the sacrococcygeal ligaments, and the passage of the fetus through the birth canal can acutely traumatize the coccyx, particularly in cases of forceps-assisted delivery. Postpartum coccydynia is frequently attributed to tension and damage of the ligaments attached to the coccyx (Sapsford, 1998).

Special considerations should be provided to postpartum women regarding posture, particularly during breastfeeding. Modern seating furniture may not offer adequate support, potentially encouraging poor posture that exerts excess pressure on the coccyx (Ryder et al., 2000).

Management options for coccydynia include manual treatments such as coccygeal mobilization and pelvic muscle massage (e.g., levator ani and piriformis), which are often performed via rectal manipulation (Maigne et al., 2000). Ultrasound therapy is also commonly utilized by physiotherapists to manage pain and is one of the most frequently employed modalities in rehabilitation settings (Mardiman et al., 1995).

A study conducted in Paris, France, found that 7.3% of female coccydynia cases were associated with childbirth (Maigne et al., 2012). In light of these findings, the current study aimed to determine the prevalence of coccydynia and associated disability among postpartum women who delivered vaginally.

## **Materials and Methods**

A total of 378 postpartum women aged 20–40 years were recruited from Saveetha Medical College and Hospital, Chennai. Inclusion criteria included women who experienced coccydynia following vaginal delivery. Exclusion criteria were cesarean section delivery, a history of back pain before pregnancy, previous back injuries or surgeries, and the use of pain medication.

Participants were fully informed about the study and provided written informed consent. Among those recruited, medical history, clinical symptoms, and physical examination results were used to identify 196 women with coccydynia. The Oswestry Disability Index (ODI) questionnaire was administered through both written forms and verbal instructions, requiring approximately 15 minutes for completion.

The questionnaire collected demographic information (e.g., name, age), obstetric history (e.g., number of pregnancies and deliveries), and specific questions regarding coccygeal pain related to previous and current pregnancies and deliveries. Of the 10 items in the ODI, 8 relevant questions were used for analysis, covering domains such as pain intensity, personal care, walking, sitting, standing, sleeping, and social life.

## **Results**

A total of 378 postpartum women were screened using the Oswestry Low Back Pain Disability Questionnaire. Of these, 196 women (51.9%) were diagnosed with coccydynia during the postpartum period. All participants were between 20 and 40 years of age. According to the Oswestry Disability Index (ODI) scoring, 96 women (49%) exhibited moderate disability, 69 women (35%) exhibited severe disability, and 31 women (16%) were classified as crippled.

Table 1 summarizes the distribution of women based on their ODI scores. Women in the moderate disability group had a mean score of 30.83 (SD = 5.61). Those in the severe disability group had a mean score of 50.36 (SD = 5.72), while the crippled group showed a mean score of 70.35 (SD = 5.61).

Table 1. Distribution of women by ODI score

ODI Score Range	Disability Level	Number of Women (n = 196)	Percentage (%)
21% – 40%	Moderate Disability	96	49%
41% – 60%	Severe Disability	69	35%
61% – 80%	Crippled	31	16%

## Discussion

The primary aim of this study was to investigate the prevalence of coccydynia and associated disability among postpartum women following vaginal delivery. Among the 378 women assessed using the Oswestry Disability Index (ODI), 196 (51%) were diagnosed with postpartum coccydynia. All participants ranged in age from 20 to 40 years. Based on the ODI classification, 49% of the women experienced moderate disability, 35% had severe disability, and 16% were classified as crippled.

Women play an essential role in family life, and their health should not be compromised. The postpartum period involves a significant increase in physical responsibilities, including breastfeeding, infant care, and household tasks. If coccydynia is not identified and managed early, it may develop into chronic pain, significantly impairing quality of life. Therefore, it is critical to screen for coccydynia in all postpartum women.

According to Maulana et al. (2015), postpartum coccydynia is often associated with difficult deliveries. The two most frequently observed lesions are luxation and fracture of the coccyx. Maigne, Doursounian, and Chatellier (2000) also noted that obesity is a significant risk factor for coccydynia, as body mass index (BMI) influences posture and sitting habits, with varying lesion patterns observed across different BMI categories.

Given the high risk of coccydynia in postpartum women, awareness of postural changes during pregnancy and implementation of lifestyle modifications may help reduce the risk of developing this condition. Early intervention and education can ultimately contribute to improved postpartum health and overall well-being for mothers.

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## References

- Howard, P. D., Dolan, A. N., Falco, A. N., Holland, B. M., Wilkinson, C. F., & Zink, A. M. (2013). A comparison of conservative interventions and their effectiveness for coccydynia: A systematic review. *Journal of Manual & Manipulative Therapy*, 21(4), 213–219.

- Kaushal, R., Bhanot, A., Luthra, S., Gupta, P. N., & Sharma, R. B. (2005). Intrapartum coccygeal fracture: A cause for postpartum coccydynia—a case report. *Journal of Surgical Orthopaedic Advances*, 14(3), 136–137.
- Lirette, L. S., Chaiban, G., Tolba, R., & Eissa, H. (2014). Coccydynia: An overview of the anatomy, etiology, and treatment of coccyx pain. *Ochsner Journal*, 14(1), 84–87.
- Maigne, J. Y., Doursounian, L., & Chatellier, G. (2000). Causes and mechanisms of common coccydynia: Role of body mass index and coccygeal trauma. *Spine*, 25(23), 3072–3079.
- Maigne, J. Y., Lagauche, D., & Doursounian, L. (2000). Instability of the coccyx in coccydynia. *The Journal of Bone and Joint Surgery—British Volume*, 82(7), 1038–1041.
- Maigne, J. Y., Rusakiewicz, F., & Diouf, M. (2012). Postpartum coccydynia: A case series study of 57 women. *European Journal of Physical and Rehabilitation Medicine*, 48(3), 387–392.
- Mardiman, S., Wessel, J., & Fisher, B. (1995). The effect of ultrasound on the mechanical pain threshold of healthy subjects. *Physiotherapy*, 81(12), 718–723.
- Maulana, R., Wahyuniati, N., & Indra, I. (2015). Postpartum coccydynia: An anatomy overview. In *Proceedings of the Annual International Conference, Syiah Kuala University—Life Sciences & Engineering Chapter* (Vol. 5, No. 2).
- Nathan, S. T., Fisher, B. E., & Roberts, C. S. (2010). Coccydynia: A review of pathoanatomy, aetiology, treatment, and outcome. *Journal of Bone and Joint Surgery—British Volume*, 92-B, 1622–1627.
- Patijn, J., Janssen, M., Hayek, S., Mekhail, N., Van Zundert, J., & van Kleef, M. (2010). Coccygodynia. *Pain Practice*, 10(6), 554–559. <https://doi.org/10.1111/j.1533-2500.2010.00404.x>
- Ryder, I., & Alexander, J. (2000). Coccydynia: A woman's tail. *Midwifery*, 16(2), 155–160.
- Sapsford, R., Bullock-Saxton, J., & Markwell, S. (Eds.). (1998). *Women's health: A textbook for physiotherapists*. W.B. Saunders.
- Schapiro, S. (1950). Low back and rectal pain from an orthopedic and proctologic viewpoint: A review of 180 cases. *The American Journal of Surgery*, 79(1), 117–128.
- Simpson, J. Y. (1859). Coccygodynia and diseases and deformities of the coccyx. *Medical Times and Gazette*, 40, 1–7.