

## Case study

# Ankylosed pubic symphysis: A case report of an idiopathic clinico-radiological mismatch in an emergency trauma

The aim of the case presented was to highlight the assessment of an incidental radiographic finding of fused symphysis for emergency clinicians and trauma surgeons involved in the assessment and management of emergency trauma cases. The objective was to understand the symphyseal affections and to review the literature for approach and management strategy for an ankylosed pubis symphysis.

A road traffic accident case of a 62-year old male presented with head, face and pelvic trauma. Standard trauma protocol evaluation was done. Computerised tomography of head revealed basal ganglia bleed, facial tomographic reconstruction was normal and radiography of pelvis **revealed an ankylosed symphysis pubis**. **Since the patient also presented with a history of pelvic trauma, then radiograph should confirm trauma or indicate normality. Ankylosed symphysis pubis is incidental and should not be the first diagnosis.** Head injury required intensive care management. The incidental radiographic finding had no history suggestive of any possible aetiological cause leading to the ankylosis of pubic symphysis. A clinico-radiological mismatch presented with an idiopathic asymptomatic symphyseal ankylosis.

A broader clinician's perspective during the radiological evaluation of an emergency trauma is needed. The case highlights the necessity of taking a detailed and thorough clinical history. The trauma surgeon and the emergency physician need to be aware of the pathological affections of the pubis symphysis leading to ankylosis to strategize for an effective management.

### ABSTRACT:

**Keywords:** Pelvis; symphysis; radiography; ankylosing spondylitis; spondylitis; clinic-radiological.

### INTRODUCTION:

Pubic symphysis frequently presents with painful aetiology due to inflammation. Commonly, pelvic instability or pubic inflammation presents with significant discomfort and pain along the pubic region [1]. An asymptomatic incidental presentation of symphyseal affection have been noticed very infrequently or occasionally on imaging of the pelvis for other reasons [2]. Ankylosis of pubic symphysis presents commonly due to either a developmental, arthritic or post-surgical fusion aetiology [3]. An idiopathic aetiology for a fused symphysis pubis is rare and it has been very infrequently detailed.

The incidental radiographic finding in a trauma patient required a clinical re-evaluation with detailed thorough history taking and examination to assess for the possible aetiological factors. We present the image to discuss the significance of history taking for the assessment of a clinico-radiological mismatch. We also highlight the clinical approach to a fused pubic symphyseal affection.

### CASE REPORT:

**A 62-year old male**, please, add more demographics for e.g occupation, body habitus, weight, ambulant, comatose, etc presented to emergency with history of road traffic accident while walking

involving a hit by a two-wheeler. Injuries were sustained to head, face and pelvic region. **After clinical assessment, radiological tests were requested. Computed tomography and plain x-ray were preferred investigations for head and pelvis, respectively.** The computer tomographic imaging of head showed haemorrhages in left basal ganglia and corona radiata with surrounding oedema and mild compression of left lateral ventricle. A trauma protocol assessment with a routine pelvis radiography revealed an incidental ankylosis of pubic symphysis. On clinical examination, there were no signs of pelvic or limb trauma. An active straight leg-raising test was possible and no motor sensory deficit was present. Pelvic compression test was negative and there was no focal tenderness at symphysis. After primary stabilization of vitals, a secondary clinical evaluation revealed no past history of pain along the pelvic region. There was negative history related to hip, pelvis and sacroiliac joint suggestive of any inflammatory, arthritic, degenerative or infective pathology as a pre-disposing factor leading to pubic symphysis ankylosis. There was no history of any pelvis related surgical intervention. Symptoms suggestive of pelvic instability could not be ascertained [4].

Initial management required intensive care monitoring for head injury. Radiologically, the fusion of pubic symphysis presented with smooth symphyseal contours with minimal sclerosis but without any evidence of irregularity, osteopenia or any surgical intervention [Figure 1].



Figure 1: Anteroposterior radiograph of pelvis with ankylosed pubic symphysis.

There was no developmental disparity of pelvic bony architecture. The absence of inter-posed symphyseal fibro-cartilaginous disc was evident. A magnetic resonance imaging (MRI) was suggested for further evaluation of pelvic pathology. However, further imaging was deferred in view of an asymptomatic nature of the clinico-radiological mismatch presentation.

## DISCUSSION:

Symphysis pubis, a non-synovial fibrocartilaginous joint may present with painful pathologies of varied aetiology [1,2]. A thorough history taking will help to identify the possible aetiology. History related to trauma, fever, multiple joint pain and surgical intervention will guide regarding the probable provisional cause of fusion. The clinical examination should determine the exact site of pain. The duration of

symptom indicates an acute or chronic pathology affection. The familial history identifies uncommon cause of developmental disorders.

An ankylosed pubis may result due to retropubic infection. According to the theory, by Coventry and Mitchell, the retropubic infection may cause venous stasis, thrombosis and eventual avascular necrosis [4,5]. In females, the common aetiology for infection includes repetitive trauma from multiple pregnancies, pelvic surgeries or pelvic sepsis presenting as osteitis pubis of inflammatory aetiology [1,3]. Osteitis pubis in males commonly affects sportspersons and athletes [1]. Tubercular and bacterial affection may present with severe inflammatory changes of symphysis pubis and infrequently septic arthritis [1,2].

The progression of the radiological changes to induce ankylosis have been hypothesised due to "backfill" by new tissue of bone marrow intensity [2,6]. Symphyseal erosions, enthesitis, widening or degeneration may present with arthritic affections related to rheumatoid, osteoarthritis or ankylosing spondylitis [1,2]. Bridging or fusion of the pubic symphysis can also be associated with various systemic and local causes. This may include fluorosis, ochronosis, post-traumatic, post-radiation therapy and myositis ossificans [7].

The symphyseal affection can be evaluated further with certain biochemical and imaging modalities based on the probable causes. An elevated acute phase reactant may indicate an inflammatory pathology. Inflammatory marker guides regarding the possible arthritic affection. On radiographs, inflammation commonly presents with symphyseal joint space erosions, sclerosis, widening or obliteration [8]. Computerised tomographic imaging may be helpful to evaluate bony involvement and affections due to trauma and tumour [1]. MRI of the pubic symphyseal region may reveal an active inflammatory change in cases related to spondyloarthropathy affections in the young and elderly age group [3]. MRI may present with subchondral marrow oedema and peri-symphyseal soft tissue oedema in association with bony changes in the affections related to inflammatory aetiology [1]. The symphyseal affection normally responds to anti-inflammatory medications. In majority, the treatment with conservative measures may resolve the symptoms of pubic pain. However, when conservative treatment fails, surgical management may be required. Option includes wedge resection of inflamed symphysis with bone grafting and fixation with plates to resolve the symptoms [4,8]. Curettage, wide resection or arthrodesis can also be done [8].

#### **CONCLUSION:**

An asymptomatic ankylosed symphysis pubis in a case of trauma may present rarely. The radiological presentation with a clinical mismatch may present challenges for the trauma surgeon and the emergency clinicians. A thorough history taking and awareness of the differential diagnosis will alleviate the diagnostic dilemma and guide in the management.

**ETHIC APPROVAL:** Ethical approval was not required for this study in accordance with local guidelines.

**CONSENT FOR PUBLICATION:** A written informed consent was taken from the patient for the use of data for publication. The patient understands that name and initials will not be published and due efforts will be made to conceal the identity, but anonymity cannot be guaranteed.

**DATA AVAILABILITY:** All data generated or analysed during this study are included in this article. Further enquiries can be directed to the corresponding author.

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**ABBREVIATIONS:**

Magnetic resonance imaging: MRI