Original Article

Primary care level prevalence of osteitis pubis in non-athlete patients in hill region: A short communication and a proposal for simple radiological grading

Ganesh Singh Dharmshaktu

Department of Orthopaedics, Government Medical College, Haldwani, Uttarakhand, India

Abstract

Background: Osteitis pubis (OP) is inflammation of pubic symphysis associated with varying degrees of supra-pubic, pelvic, or lower abdominal pain. The condition may be severe in many patients with significant disability and protracted course of recovery. The condition is frequently described in sportspersons or athletes but consensus on classification and treatment guidelines is non-existent due to rarity of the condition. Its presence in non-athletic population is limited to a series of few cases or anecdotal case reports. Our study describes salient features of pattern of this disorder diagnosed on clinico-radiological basis in cases referred from primary care centers to our tertiary care center. **Materials and Method:** A total of 26 patients (mean age of 36.28 years, 25 females, and 1 male case) with radiological features suggestive of OP were included in the study and relevant demographic details were noted for each. A radiological grading (Grade A to E) for notification was developed and the cases were categorized accordingly. **Results:** Most of the cases were hard-working women from villages. Pregnancy was the major condition for which they ever consulted a health-care facility. Chronic, but not disabling, supra-pubic pain was the chief complaint in most cases. In some cases, the primary presentation was for some other disorder like low back pain in two, hip pain in six cases, adjacent fracture in three, and old lumbar osteoporotic compression fracture in one case. Other notable associated disorders included polio, ankylosing spondylitis, femoroacetabular impingement, and hip dysplasia. Conservative management was done in all cases except one with associated fracture. Good clinical outcome was noted in all but one case. Grade A cases were maximum (7) followed by grade B (6), grade D (4), and grade C (3). Only one case of grade E was noted with almost ankylosed symphysis. **Conclusion:** This article highlights acknowledgment and knowledge of OP in primary care settings and its anticipation even in normal population for a better understanding of prevalence and radiological presentation.

Keywords: Inflammation, pain, pubic symphysis, supra-pubic pain

Introduction

Osteitis pubis (OP) is a disabling and poorly understood condition that is extensively reported in sports persons. Groin and supra-pubic pain in sports persons may be related to micro-tears or rapid acceleration-deceleration. Men between 30 and 50 years of age and women in their mid-30s are mostly found to be affected by this condition.[1] Various urological, surgical, or pregnancy is also associated with this disorder.[2] Various theories like traumatic, infective, and vascular obstruction have been postulated but no confirmatory etiopathogenesis is currently available. Various tests are described to clinically suspect the condition that typically presents with pain of varying degrees

Address for correspondence: Dr. Ganesh Singh Dharmshaktu, Department of Orthopaedics, Government Medical College, Haldwani - 263 139, Uttarakhand, India.
E-mail: drganeshortho@gmail.com

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increasing on walking, coughing, side postures, and waddling gait among common features.[3] There is also a reported association of OP and pelvic instability with varying degrees of pain and both conditions are thought to be contributory to each other.[4] There are, however, no characteristic clinical pathognomonic signs for this disorder and clinicoradiological correlation and exclusion of related disorder is the mainstay of diagnosis. The level of evidence of available literature is low, and meta-analysis of studies is also not possible currently.[5] There is a need for better studies and larger patient pool to understand this disorder comprehensively.

Materials and Method

A retrospective collection of data pertaining to the presence of symptomatic OP on radiographs done for hip or low back pain in out-patient cases was done. The study was exempted from ethical committee processing as per institutional protocols. The abnormal outline, irregularity, and erosive changes were noted in the pubic symphyseal region on radiographs. The changes in unilateral or bilateral involvement of pubic bones showing sclerosis and irregularity were noted. The relevant demographic detail like age, sex, occupation, associated co-morbidity, history of smoking or alcohol, and history of prior medication was noted for each case. The complaint for which they presented was noted along with treatment details. The patients were asked about any previous history of pain or discomfort associated with any prior surgeries. Advance imaging prescribed like computerized tomogram (CT) or magnetic resonance imaging (MRI) and its findings if available were also noted. Basic hematological investigations were done in all cases and any remarkable findings were also noted. As there is no validated classification system for grading for OP in non-athletes we attempted to form a simple radiological grading system that is easy to use in routine practice. The grading was based on plain radiographs of the pelvis and assessment of features of radiographic symphyseal changes thereupon. The five grades (A to E) with description of the proposed grading system are described in a diagrammatic manner [Figure 1]. The attempt to radiologically grade the OP has been done previously on athletes. Three grades, slight change, intermediate change, and advanced changes and long with each grade divided into further sub-grades have been described.[6] The cortical irregularity, cystic changes, and bony proliferation have been measured on linear scale (millimeter). The classification for non-athletic population does not exist, and in our opinion, the presentation of cases and involvement of local anatomy may differ from athletic ones. We have attempted a modified classification system, based on plain radiograph of the pelvis, with the key difference being the involvement of the cortical margins in percentage of the length of that margin for ease of observation and practical feasibility.

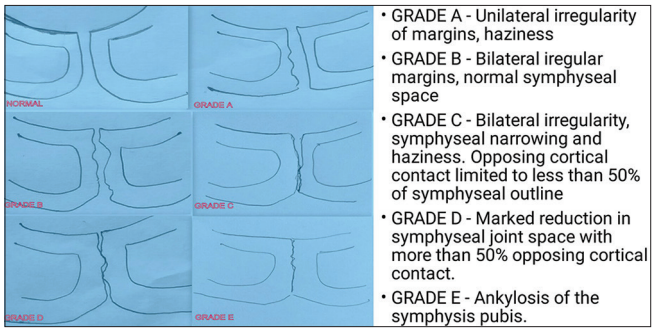

Figure 1: The pictorial description of proposed grading system for the osteitis pubis in non-athletes. The grading based on radiographic assessment is divided into five grades (A-E)

Result

The study involved 26 cases out of a total of 28 who underwent full treatment and a minimum follow-up of three months. The female-to-male ratio was 25:1 and the mean age was 36.28 years (range 15–75 years). There was history of supra-pubic area pain in 15 cases, and other cases had old history of supra-pubic pain and presented with some other problem. Associated hip and low back pain was found in three cases whereas hip pain was found in another three cases. There was unilateral pubic bone irregularity of articular aspect [Figure 2a and 2b] noted in only two cases and rest of the cases showed well-defined advanced-stage arthrosis of pubic symphysis with varying degrees of joint space reduction. Six case showed grade B changes [Figure 3a and 3b] whereas three case showed grade C [Figure 4] changes in the radiographs. Fracture of the neck of femur was presenting complaint in three females whereas one female had old, healed vertebral compression fracture of the first lumbar vertebra. There only male patient had ankylosing spondylitis with fused sacroiliac joints and bilateral hip joints undergoing gradual ankylosis. Femoroacetabular impingement was seen in three cases [Figure 5] with predominantly cam type and pincer type in two and one case, respectively. One case each of polio and bilateral hip dysplasia showing under-coverage of bilateral head of femur were also seen. The relevant details of the characteristics of patients are shown in the tabulated form [Table 1]. According to our classification, the pattern of involvement of our cases was as following: 7 cases of grade A,

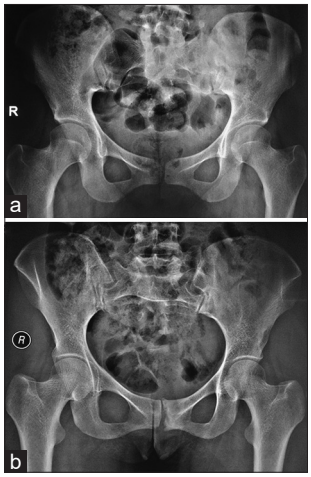

Figure 2: Radiographs of two cases with grade A unilateral (a, upper right side hazy margin) and (b, left side cortical irregularity)

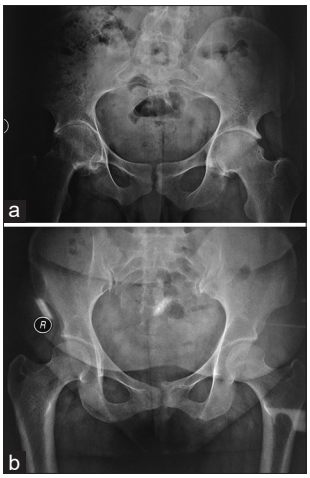

Figure 3: Two examples (a and b) of grade B showing bilateral affliction, irregularity, and haziness on either side cortical involvement

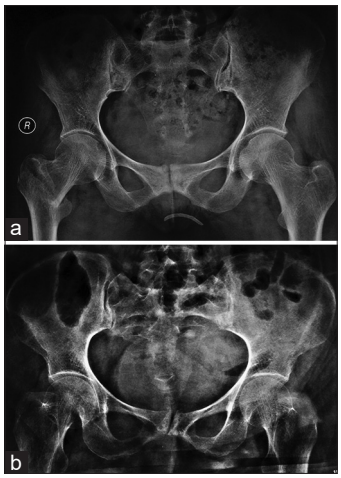

Figure 4: Grade C involvement in two cases, one with right side femur neck fracture (a), and below case (b) shows an associated oblique orientation of the symphysis. Both cases have less than 50% cortical contact

Table 1: Relevant details of the characteristics of the patients in the study

Key features	Number of cases
Age	36.28 year (range 15-75)
M:F	25:1
Uni-/Bilateral	2:24, 1 case with almost ankylosis
Associated conditions	
Femoroacetabular impingement	
Fracture neck femur	
Coxa vara	
Head under-coverage by acetabulam/dysplasia	
Ankylosing bilateral hip joints in ankylosing spondylitis	
Osteoporosis/osteoporotic vertebral compression fracture	
Bilateral hip dysplasia and anatomical deformity head	
Grading as per author's criteria	Cases
Grade A	7
Grade B	6
Grade C	3
Grade D	4
Grade E	1

6 cases of grade B, 4 cases of grade D, 3 cases of grade C, and 1 case of grade E. The classification proved easier to be used by us.

Discussion

The groin region pain poses diagnostic challenge due to complex anatomy, biomechanics, and many differentials to exclude. An astute clinical history and examination coupled with judicious use of diagnostic imaging is warranted for appropriate diagnosis and exclude condition that mimic OP.[7] Many of the research in pubalgia comes from athletic case pool, and similar understanding in non-athlete population is limited. The prevalence and management in non-athletic patients are not well described in the literature due to rarity. The association of OP with hip condition like femoro-actebular impingement (FAI) is reported as significant in imaging studies done in athletes.[8] Similar studies in non-athlete population are very few. In one study, cam-type FAI has been found to be associated with the case of OP especially in non-athlete population in an MRI-based study.[9] Statistically significant increase in the presence of OP was found in cam-type impingement cases compared to the control group. Further studies, however, are advocated to know more about these associations for valuable insights in the future. One case presenting with bilateral hip pain in our series had radiographic FAI impingement more of pincer type. Low incidence of syphysis pubis joint abnormalities in cases of FAI, however, was found in another study, but those cases reported inferior clinical outcomes.[10] A review of most recent articles described conservative treatment as first-line treatment that suffices in majority of cases in athletic OP.[11] The evidence, though, is still weaker and grade D for nonoperative rehabilitation program is effective for athletes to return to their pre-injury level of participation.[12] In a recent series of non-athletic patients, most of the cases required conservative care for clinical improvement and usually surgery was not required.[13] All our cases demonstrated clinical improvement with pain medications, rest, and physiotherapy except one case with FAI. It is likely that bilateral hip arthritis in that case would have resulted in sub-optimal outcome. A recent study based on high-resolution MRI of pubic symphysis in athletes with OP demonstrated better diagnosis and it also had prognostic value. An optimized protocol of MRI was advocated for the management of this disorder.[14] In a study of professional football players, the presence of peri-articular soft tissue edema extending to muscles around symphysis and higher bone edema in short tau inversion recovery sequences in the initial stages of the disease was found to be an important finding associated with poor long-term outcome and thus served as a negative prognostic factor.[15] In our study, the requisition of MRI was declined by patients due to financial issues and radiographic evaluation was the sole method used. Its differentiation from osteomyelitis needs careful exclusion.[16] There are reports of purulent infection of syphysis pubis and

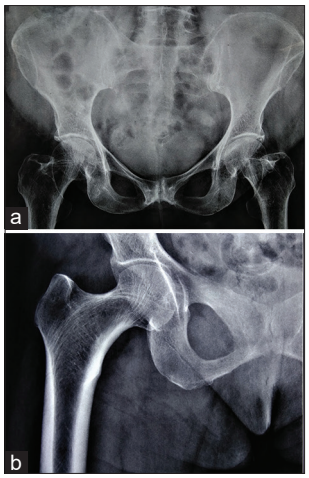

Figure 5: A case with bilateral hip joint narrowing due to femoro-acetabular impingement along with osteitis pubis grade D, with more than 50% cortical contact of opposing margins (a). Another case showing near fusion of pubic symphysis (grade E) as sequelae of chronic osteitis pubis (b)

is termed symphysitis pubis purulenta to differentiate it from osteitis.[17] Routine blood investigations in all our cases were normal and not suggestive of infection. Ruling pelvic region sepsis out in the setting of OP is important for further management including surgical ones.[18] OP has been occasionally reported with pregnancy after the delivery but many of them are very old reports whereas osteomyelitis is more commonly reported than osteitis during/post-pregnancy.[19,20] All our female cases had no history of any pain or associated disorder during or after the pregnancy but for all the cases, pregnancy was the sole surgical procedure in 21 and normal delivery in 9 cases. OP is more reported with other surgical and urological procedures. This condition largely remains poorly understood to date and further research is warranted for better insights. Steroid injections have been found to relieve clinical symptoms but it is unclear whether the healing was spontaneous or steroid induced.[21] Unique anecdotal reports regarding its associations are periodically reported and highlight the enigmatic nature of this disorder. Like in one report, clinical improvement of this condition is described with episode of recent tooth extraction.[22] Many new treatment methods like cleft injection have been tried for this condition with encouraging results but robust evidence is still lacking.[23] The prostatic calcification has also been reported to be associated with OP and many a time the tissue is adherent to pubic symphysis.[24] No prostate problem, however, was noted in our sole male patient. Recently, ultrasound-guided platelet-rich plasma was used with promising results in a recently reported case.[25] The treatment can be used as an additional option in selected cases in some well-equipped primary care facilities also. Our study consists of one of the largest patient pool of OP in normal population and thus shall be instrumental for further work in this direction.

Conclusion

There is scarcity of studies about OP in normal population in the literature, and more data is required for better knowledge about this condition. This small observation suggests that the cases of OP in primary care setting are underrepresented and the actual prevalence of the condition may be higher in hilly terrain in north India. The knowledge of prevalence in non-athlete women from the Indian subcontinent and simple radiographic classification shall be instrumental in data collection and future research in this context. Further robust studies are required for more comprehensive knowledge regarding prevalence, demography, clinical profile, and associated condition for better diagnostic classification and treatment recommendation.

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Conflicts of interest

There are no conflicts of interest.

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