Case Report

Journal Homepage: http://crcp.tums.ac.ir

Iliac Blade Osteochondroma: A Rare Case Presentation and Review of Literature

Nandlal Bharwani [1*], Ravina Yadav [2], Hemant Jain [1], Mahesh Bhati [1]

1. Orthopaedics, DR.S. N Medical College, Jodhpur.

2. Pathology, DR.S. N Medical College, Jodhpur.

Use your device to scan and read the article online

Citation Bharwani N, Yadav R, Jain H, Bhati M. Iliac Blade Osteochondroma: A Rare Case Presentation and Review of Literature. Case Reports in Clinical Practice. 2023; 8(2):52-59.

Running Title Iliac Blade Osteochondroma: A Rare Entity

Article info:

Received: 6 March 2023

Revised: 14 April 2023

Accepted: 25 April 2023

Keywords:

Iliac blade; Osteochondroma; Benign lesion; Flat bones

ABSTRACT

Most common benign tumors in orthopedic outdoor clinics seem to be osteochondroma/exostosis which are around 20-50% of all benign bony lesions. Flat bones like iliac blade, scapula, ribs and clavicle which develop from intra-membranous ossification are rarely involved.

A28 year old female from rural area presented to orthopedic outdoor clinic with pain and swelling around the inguinal region on right side for past 18 months and diagnosis was made after incisional biopsy. Iliac blade is a rare site for presentation and the patient had no neurovascular compression or mass effect on surrounding structures.

Osteochondromas of flat bones are rarely encountered, therefore, proper diagnosis should be made and other differential diagnoses should be considered during evaluation of mass around the pelvic girdle.

*** Corresponding Author:**
Nandlal Bharwani, MD.

Address: *Orthopaedics, DR.S. N Medical College, Jodhpur.*

E-mail: *nandlalbharwani21@gmail.com*

Introduction

Most common benign tumors in orthopedics seem to be osteochondroma/ exostosis which are around 20-50% of all benign bony lesions.[1,2] These lesions are commonly encountered during the growth phase and cease around maturity.[1,3] It can present as single or multiple lesions with autosomal dominant inheritance.[3] The possible origin for growth is beneath the periosteal layer of bones. [1, 2] Sessile or pedunculated types are commonly encountered with sessile form being more common. [1] It mostly affects long bones originating from enchondral ossification like metaphysis of proximal tibia and distal femur.[4] Flat bones like iliac blade, scapula, ribs and clavicle which develop from intra-membranous ossification are rarely involved.[5] We report a case of sessile osteochondroma of iliac blade presenting with pain and swelling around the inguinal region.

Case Presentation

A28 year old female from a rural area presented to orthopedics with right sided pain and swelling around the inguinal region for past 18 months. The patient gave history of insidious onset of swelling which progressed gradually with time and was associated with pain and, for the past two months, daily household activities were affected.

On examination, mass around right iliac blade was noted, which was of 8 x 12 x 13 cm approximately. The swelling was not adherent to overlying skin and soft tissue, whereas fixity to underlying bone was noted.

Thereafter, digital radiograph of antero-posterior view of pelvis with bilateral hips showed growth arising from right side iliac blade which extended up to the lateral edge of iliac blade. CT-scan of pelvis with bilateral hips showed sessile osteochondroma of iliac blade extending up to greater sciatic notch and measuring approximately 9.7 x 13.8 x 14.1 cm. MRI of pelvis with bilateral hip showed bony growth around iliac blade with no soft tissue and neurovascular involvement.

Informed consent was taken from the patient before performing an invasive procedure.

Then, incisional biopsy was taken from the affected part and sent for histo-pathological examination (HPE). It was reported to be osteochondroma which showed cartilage cells with bony trabeculae and no evidence of dysplastic changes.

Surgery was suggested to the patient for excision of mass from the iliac blade but the patient was lost to further follow-up.

Review of Literature-

We have prepared a table summary of the literature for all cases of pelvic girdle osteochondromas/exostosis. This article summarizes all cases in Pubmed that meet the inclusion criteria from 2010-2021. Complete details related to onset, signs, symptoms, local examination, radiological findings, HPE findings and complete follow-up results are shown in Details mentioned in the table showed osteochondroma arising from the bones of the pelvic girdle, with mean age of 35.45 years (range 19 to 70 years). The disease duration was from 6 months to 20 years. In all cases, the right side [6-10, 16] was involved more in comparison to the left side [13, 14]. Six out of eleven cases were male [6, 7, 8, 10, 16], whereas five out of eleven were female [9, 12-15] patients. The most common noted symptom was swelling which was progressive with time [6,8,9,12,15], pain was noted in some cases [7,10], radiating pain to lower limb [7,13,14] and restricted movement at the hip joint [7,10]. On local examination, fixity of mass to underlying bone was noted. In all cases, surgery for tumor removal was successful.

Fig. 1. Digital radiograph of pelvis with bilateral hip joint showing calcified lesion around right iliac blade.

Table 1. Summary of literature for all cases of pelvic girdle osteochondromas/exostosis

Case	Patient Details	Symptoms	Examination	HPE	Treatment
Ratra R *et al.* [6] (2019)	24 yr-old male ,di sease duratio n of 2 yrs	Swelling causing mass effect and irritation around right inguinal region.	Fixed to underlying bone (superior pubic rami) and no fixity to overlying structures, Size of swelling 8cm x 11cm.	Osteochondrom a showing cartilage cells with bony trabeculae with no dysplastic changes.	Ilio-inguinal approach for surgical excision used.
Gokkus K *et al*. [7] (2013)	25 yr-old male ,di sease duratio n of 10 yrs.	Sciatica or radiating pain in right lower limb and worsened while sitting	Limping on right side, tenderness around ischium and flexion deformity with normal rotation movement around hip.	Cartilage cap with chondrocyte arranged in columnar pattern characteristic of osteochondroma	Modified Gibbson approach used for surgical excision.

Herode P *et al*. [8] (2015)	18 yr-old male ,di sease duratio n of 5 yrs.	Patient came to OPD for cosmetic concern.	Right side groin swelling measured 3cm x 5cm around pubic tubercle.	Osteochondrom a with no malignant transformation.	Extended Ilio-inguinal approach for surgical excision. Follow-up 1 year.
Jie Sun *et al*. [9] (2020)	45 yr-old female , disease duratio n of 20 yrs.	Swelling around right hip without pain.	Swelling around hip measuring roughly 18cm x 15cm x 10cm, fixed to underlying bone.	Osteochondrom a with varied thickness of cartilage cap. Specimen measurement (16cm x 15cm x 10cm).	En-bloc excision along with iliac-crest. Follow-up 1 year.
R.Vaishy a *et al*.[10] (2017)	21yr old male ,di sease duratio n of 5 yrs.	Insidious onset of right hip pain, exaggerated with walk.	Antalgic gait, restricted flexion and internal rotation	Cartilaginous cap with bony tissue suggestive of osteochondroma	Ganz's approach for safe surgical dislocation used for excision. Follow-up for 2 years, Harris hip score used.

Song *et al*. [11] (2021)	70 yr- old male, disease duratio n of 2 yrs.	Presented to outdoor for routine check- up microscopic haematuria seen	Mass noted in USG, CT- abdomen showed anterior bladder compression by growth	Osteochondrom a	Surgical excision. Follow-up for 6 months.
Lee W*et al*.[12] (2020)	41 yr old female , disease duratio n of 2 yrs.	Presented to OPD with pelvic pain, urinary frequency, urinary incontinence, dyspareunia	Mass palpable in vagina with exposed mesh.	Osteochondrom a	Abdominal retropubic approach for surgical excision. Follow-up : 4 months.
K.R Chin *et al*.[13] (2010)	54 yr- old female , disease duratio n of 8 months.	Low back pain with radiating pain in left lower limb.	Decreased muscle strength on left side with no bowel, bladder involvement.	Osteochondrom a with no malignant cells.	Retroperitonea l abdominal approach for surgical excision. Follow-up : 8 months.
de Moraes *et al*.[14]	42 yr - old	Radiating pain from left thigh	Mass noted around left	Osteochondrom a	Kocher- Lagenbeck

Discussion

Till now, reported studies on exostosis or osteochondroma state that it accounts for around 8% of all tumors of bone and 35% of all benign bony lesions [17]. Mostly, these osteochondromas are seen during the growth period of long bones with open physes [1, 3]. The bones developing from enchondral ossification are commonly predisposed for development of osteochondroma with distal femur and proximal tibia being the most common sites. [1] Involvement of flat bones like scapula, pelvic girdle, small bones of feet and hands is rare. [5] We present a case of iliac blade osteochondroma which is one of the rare locations but presented with a huge size. In these cases, compared to females, male dominance is seen in the ratio of 1.6:1. Similar finding was noted in the present study (M: F-1.2:1). EXT-1, 2 genes, radiation exposure, surgical procedure are thought to be involved in the disease process of osteochondromas. [4, 8, 18] In the literature review, we mentioned the cases arising from bones in the pelvic girdle including the pubis (four) [6, 8, 11, 12], ischium (three) [7, 14, 16], sacrum (two) [13, 15], acetabulum (one) [10], and ilium (one) [9].

Exostosis is characterized by a slow growing mass and increasing size during the growth phase of bones and hence proper clinical examination with non-invasive investigations like radiographs, and CT-scan are carried out pre-operatively for management of osteochondromas. [12] Symptoms like sciatica, radiating pain to lower limbs, haematuria, and bladder obstruction are mostly noted as a result of compression of nearby neuro-vascular structures and visceral organs by the growing mass [4,19] Malignant transformation can be seen in cases with osteochondroma and until now the literature states that conversion of osteochondroma to chondrosarcoma is merely 1% [4,18,19]

Our patient had complaints of pain and swelling around the right iliac region which aggravated with daily routine activities. Neurovascular structures and visceral organs were not compressed as mass was present on the ventral surface of the iliac blade. For a tumor mass like osteochondroma, surgical excision remains the treatment of choice but, unfortunately, in the present report, the patient was lost to follow-up and surgical excision could not be performed.

Fig. 2. CT- scan of hip joint showing calcified lesion arising from right iliac blade.

Fig. 3. CT-scan showing extent of iliac blade osteochondroma.

Fig. 4. Magnetic resonance imaging sections showing calcified lesion around right iliac blade.

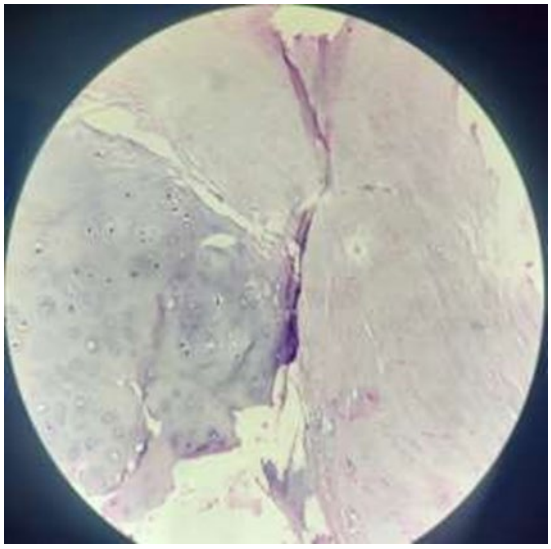

Fig. 5. HPE showing cartilage cells and bony trabecular pattern characteristic of Osteochondroma.

Conclusion

Osteochondromas are frequently seen in orthopaedics outpatient clinics but flat bone involvement is rarely seen. Thus, proper clinical check-up with investigations should be done to avoid misdiagnosis. Whenever these masses become symptomatic, surgical excision is the treatment of choice.

Ethical Considerations

Compliance with ethical guidelines

Patient and relatives' consent was taken

Funding

This research did not receive any grant from funding agencies in the public, commercial, or non-profit sectors.

Conflict of interest

The authors declared no conflict of interest.

Acknowledgements

None

References

[1] Heck KR Jr. Benign bone tumors and neoplastic conditions stimulating bone tumors. In: Canale ST, Beaty JH, editors. Campbell's Operative Orthopaedics. 11th ed. Philadelphia, PA: Mobsy Elsevier; 2007.p.858-61.

[2] Oljaca A, Hirzberger D, Bergovec M, Tiesenhausen K, Koter SH, Friesenbichler J, et al. Osteochondroma of the scapula associated with subclavian artery pseudoaneurysm: Case report. SAGE Open Med Case Rep 2019; 7:2050313X18823089.

[3] Taheriazam A, Saeidinia A. One-stage surgical excision of a huge bilateral multiple osteochondroma of the hip: A case report. Electron Physician 2017; 9:5310-7.

[4] Nekkanti S, Savsani S, Reddy YC, Meka A, Mahtani A. A rare sessile variant of osteochondroma presenting at an unusual site of the iliac wing in a 15year old. J Orthop Allied Sci 2018; 6:93-5.

[5] Mohan M, Buch SA, Babu GS, Castelino RL, Rao K. A rare clinical presentation of an osteochondroma of coronoid process of mandible. J Dent Shiraz Univ Med Sci2018; 19:325- 30.

[6] Ratra R, Peshin C. Rare Presentation of Benign Osteochondroma: A Case Report. Journal of Orthopaedic Case Reports 2019Nov-Dec;9(6): 82-85.

[7] Gokkus K, Aydin AT and Sagtas E. Solitary osteochondroma of ischial ramus causing sciatic nerve compression. Eklem Hastalik Cerrahisi 2013;24: 49-52.

[8] Herode P, Shroff A, Patel P, Aggarwal P, Mandlewala V. a Rare Case of Pubic Ramus Osteochondroma. Journal of Orthopaedic Case Reports 2015 July-Sep;5(3):51-53.

[9] Sun J, Wang ZP, Zhang Q, Zhou ZY, Liu F, Yao C, Zhang YF. Giant osteochondroma of ilium: a case report and literature review. Int J Clin Exp Pathol. 2021Apr 15;14(4): 538-544. PMID:339363379; PMCID: PMC8085818.

[10] R. Vaishya et al. Isolated acetabular osteochondroma of the hip. Acta Orthopaedica et Traumatologica Turcica 51 (2017) 420-424.

[11] Song LC, Xu Q, li H, Li ZJ, Li Y, Qin YF, Wang BL, Zhang HF. Osteochondroma of the pubic symphysis causing haematuria: a case report and literature review. BMC Urol. 2021 Jan 6;21(1). Doi: 10.1186/ss12894-020-00770-8.

[12] Lee W, Amin K, Kieras DM, Coy DL, Ruhoy SM, Lee UJ. Osteochondroma of the pubic symphysis involved with aberrantly minisling: a case report. Female Pelvic Med Reconstr Surg. 2020; 26(1): e 1-3. osteochondroma of the ilium: A case report. Int J Orthop Surg 2009; 16:14.

[13] Chin KR, Kim JM. A rare anterior sacral osteochondroma presenting as sciatica in an adult: a case report and review of the literature. Spine J. 2010 May; 10(5): e 1-4. Doi:10.1016/ j. spinee.2010.02.018.

[14] De Moraes FB, Silva P, do Amaral RA, Ramos FF, Silva RO and de Freitas DA. Solitary ischial osteochondroma: an unusual cause of sciatic pain: case report. Rev Bras Ortop 2014; 49: 313-316.

[15] Tripathy SK, Nanda SN, Sable MK, Doki S, Velagada S. Solitary Sacral Osteochondroma Causing Postural Difficulty in a Young Female: Cureus. 2019 Dec 26;11(12): e6470. Doi: 10.7759/cureus.6470.

[16] Zhu J, Li Y, Fan M, He X and Wang L. Osteochondrolipoma: a lipoma with cartilaginous and osseous differentiation of the ischium. Int J Clin Exp Pathol 2018; 11: 44724-4730.

[17] Bovee JV, Wilpshaar TA. Bone: Osteochondroma. Atlas Genet Cytogenet Oncol Haematol 2019; 23:133-6.

[18] Sharma S, Kalsotra SN, Gupta P, Wani I, Singh D. Solitary osteochondroma of the ilium: A case report. Int J Orthop Surg 2009; 16:14.

[19] Ali N, Bhat A, Bangroo FA, Dhanda MS, Maqsood M, Sharma SC, et al. Isolated osteochondroma of the ilium: Case report with review of literature. Scholars J Appl Med Sci 2014;2: 1573-6.