

Case Report / Olgu Sunumu

Intraosseous Lipoma of the Ilium

İliumda İntraosseöz Lipom

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We report a case of intraosseous lipoma of the ilium which to the best of our knowledge, has a very rare incidence. Intraosseous lipoma of bone itself has an incidence of approximately 1/1000 among all bone tumors. The most commonly involved sites are metaphyseal or epiphyseal regions of long bones such as femur, tibia, fibula, and calcaneus. First case of intraosseous lipoma involving the ilium was reported in 1988 and although the exact incidence is not known, based on the literature survey, we can suggest that this bone still seems to be among the least commonly involved bones by this tumor in humans.

Key words: Intraosseous lipoma; ilium; bone tumor.

Bu makalede bildiğimiz kadarıyla çok nadir görülen iliumda intraosseöz lipom olgusu sunulmuştur. İntraosseöz lipom tüm kemik tümörleri arasında 1/1000 oranında görülmektedir. En çok tutulan bölgeler femur, tibia, fibula ve kalkaneus gibi uzun kemiklerin metafiz ya da epifiz bölümleridir. İliumda intraosseöz lipom olgusu ilk olarak 1988'de bildirilmiştir. İnsidansı tam olarak bilinemese de, literatür taramasına dayanarak insanlarda iliak kemiğin bu tümör tarafından tutulumunun günümüzde de son derece nadir görüldüğünü söyleyebiliriz.

Anahtar sözcükler: İntraosseöz lipom; ilium; kemik tümörü.

Literature review reveals that intraosseous lipoma is a very rare benign bone tumor accounting for approximately 0.1% of all bone tumors.^[1-3] Although its pathogenesis has not been defined thoroughly yet, some hypotheses were suggested that seem possible. One hypothesis is that a true tumor is developed in intraosseous adipose tissue which arises from mature lipocytes: another possible mechanism is a reactive osseous change induced by trauma, infection and vascular compromise among others.^[4]

Intraosseous lipoma of bone has been reported to occur usually in metaphyseal or epiphy-

seal regions of long bones such as femur, tibia, fibula, and calcaneus,^[1-6] but intraosseous lipoma involving the ilium have been reported in a very few cases.^[7] We present a case of intraosseous lipoma of the ilium, which, based on our literature survey and to the best of our knowledge, has an extremely rare incidence.

CASE REPORT

Twenty-six-year-old female patient suffering from pelvis and low back pain was referred to our outpatient unit. The patient reported that the pain was present for two years and

during the last three months its intensity was increased and began awakening her at nights. Morning stiffness was not present. There was no history of trauma. History revealed that she had ingested many drugs for pain during this time. Physical examination revealed no abnormalities except positive sacro-iliac compression test at the left side, positive Gillette test on the left side and low back pain during terminal degrees of anterior flexion of lower spine. Straight Leg Raising and Slump tests were negative. Neurological examination revealed no sensory or motor dysfunction. Plain X-ray of pelvis and sacro-iliac joint revealed no obvious abnormality (Fig 1). Routine laboratory tests were within normal limits including complete blood count, sedimentation rate, CRP and HLA-B27 among others. Magnetic resonance image (MRI) study of pelvis and sacro-iliac joints revealed a 7-mm mass lesion with well-defined margins in the posterior region of the left iliac bone which was hyper-intense on T1-weighted images and was hypo-intense on short τ inversion recovery (STIR) sequence with fat suppression (Figs. 2 and 3). Radiological diagnosis was considered intraosseous lipoma of the ilium with these findings.

DISCUSSION

Buckley and Burkus^[7] reported the first case of intraosseous lipoma of the ilium in 1988. Since then, with increasing use of computed tomography and magnetic resonance imaging, the number of case reports regarding intraosseous lipoma have been increased, but based on the literature survey, we can easily suggest that the iliac bone still remains to be one of the least commonly involved bones by this tumor.^[1-4,7] Intraosseous lipoma of bone itself has an incidence of approximately 1/1000 among all bone tumors. The most commonly involved sites are metaphyseal or epiphyseal regions of long bones such as femur, tibia, fibula, and calcaneus.^[1-6] It was reported that the majority of the cases are incidentally discovered without any special symptoms.^[4] Our patient had low back and pelvic pain necessitating a differential diagnostic work-up clinically. Positive sacro-iliac compression and Gillette tests are common signs



Fig. 1. Anteroposterior radiograph of pelvis and sacro-iliac joints was normal.

of more frequent sacro-iliac pathologies such as sacro-iliac joint dysfunction and sacroileitis among others. Magnetic resonance imaging has the advantage to differentiate tissue components such as hematoma, fat, necrosis and cystic areas and is considered a valuable tool for the specific diagnosis of some bone tumors.^[1] Primary role of MRI in the diagnosis of intraosseous lipoma is to detect fat within the lesion.^[1,2] Viable fat cells in an intraosseous tumor show high signal intensity on T1W and T2W MR images, and fat suppression technique is a very useful guide as it converts the high signal intensity to low signal intensity thus helps us in the diagnosis of intraosseous lipomas.^[4,6] Magnetic resonance imaging study of the case presented in this paper revealed a 7-mm mass lesion with well-defined margins in the posterior region of left iliac bone which was hyper-intense on T1-weighted images and was hypo-intense on short τ inversion recovery (STIR) sequence with fat suppression (Figs. 2 and 3).

Milgram^[8,9] has established a well-known and widely used grading for intraosseous lipomas. According to this grading, stage I lipomas are solid tumors composed of viable fat cells; stage II represents the transitional phase in which the tumor shows partial fat necrosis and focal calcification; stage III is the late phase in which the fat cells in the tumor have died and there is a variable degree of cyst formation, calcification, and reactive bone formation.^[8,9]



Fig. 2. Magnetic resonance image study of pelvis and sacro-iliac joints revealed a 7-mm mass lesion with well-defined margins in the posterior region of the left iliac bone which was hyper-intense on T1-weighted images.



Fig. 3. The lesion with high signal intensity on T1W images showed decreased signal intensity on STIR images which confirmed the diagnosis of intraosseous lipoma.

Report by Blacksin et al.^[10] which used MRI for a more definitive diagnosis of intraosseous lipomas suggested that lesions with fat tissue has a high signal intensity on both the T1- and T2-weighted MR images whereas those with excessive fat necrosis show low signal intensity on T1W images.

Conversion of the low signal intensity of lipoma by fat suppression technique on MRI has been reported to be a very useful guide in the differential diagnosis of intraosseous lipomas.^[4] Magnetic resonance imaging has been considered such a useful diagnostic tool that in current literature some authors support the view that in asymptomatic cases with no impending fracture, a non-operative treatment with clinical and radiological follow-up is a wise approach.^[1,2,9]

Considering this grading and MRI-based definition, we think that our case is a stage I intraosseous lipoma of the ilium. The lesion with high signal intensity on T1W images showed decreased signal intensity on STIR images which confirmed this diagnosis (Figs. 2 and 3). This patient was consulted with Orthopedics Surgery Department and surgery was planned before the report of this case.

In conclusion, our case was a typical example of an intraosseous lipoma regarding the MRI findings and the striking feature was the involvement of the iliac bone which has a very rare incidence and which may confuse the minds of some experts engaged in the differential diagnoses of pelvic and sacro-iliac diseases.

REFERENCES

1. Kamekura S, Nakamura K, Oda H, Inokuchi K, Iijima T, Ishida T. Involuted intraosseous lipoma of the sacrum showing high signal intensity on T1-weighted magnetic resonance imaging (MRI). *J Orthop Sci* 2001;6:183-6.
2. Rose RE, Golding T. Intraosseous lipoma. Is a biopsy necessary? *West Indian Med J* 2006;55:291-2.
3. Usta U, Baş M, Aydın NE, Güreşçi S. Fibro-osseous pseudotumor of the digits. *Trakya Univ Tıp Fak Derg* 2007;24:77-80.
4. Kim JT, Han YM, Chung DS, Park YS. Intraosseous lipoma of the lumbar spine. *J Korean Neurosurg Soc* 2004;35:220-2.
5. Beekwee R, Verstraete KL, Huyse CC. Incidental finding of an intraosseous lipoma of the pelvis. *JBR-BTR* 2003;86:140-1.
6. Ozdemir H, Bozgeyik Z, Kocakoc E, Kalender O. MRI findings of intraosseous lipoma: case report. *Magn Reson Imaging* 2004;22:281-4.
7. Buckley SL, Burkus JK. Intraosseous lipoma of the ilium. A case report. *Clin Orthop Relat Res* 1988;(228):297-301.
8. Milgram JW. Intraosseous lipomas: radiologic and

- pathologic manifestations. *Radiology* 1988;167:155-60.
9. Milgram JW. Intraosseous lipomas. A clinicopathologic study of 66 cases. *Clin Orthop Relat Res* 1988;(231):277-302.
10. Blacksia MF, Ende N, Benevenia J. Magnetic resonance imaging of intraosseous lipomas: a radiologic-pathologic correlation. *Skeletal Radiol* 1995;24:37-41.