



A novel technique for intraoperative confirmation of the presence of nidus in the resected bone

Rezeke edilen kemik dokuda nidus varlığının intraoperatif doğrulanmasında yeni bir yöntem

İrfan Ayan¹, Abtullah Milcan¹, F. Demir Apaydın², Mehmet Çolak¹

1. Mersin University, Faculty of Medicine, Department of Orthopedics and Traumatology

2. Mersin University, Faculty of Medicine, Department of Radiology

Mersin, Turkey

Abstract

We report a confirmation method for locating a rarely found pelvic osteoid osteoma using intraoperative computerized tomography. To our knowledge this method is not described in the literature.

Key words: Osteoid osteoma; Pelvic; Tomography guidance.

Özet

Pelviste yerleşen bir osteoid osteomanın tedavisinde, rezeke edilen kemik doku içinde nidusun bulunup bulunmadığını saptamak için intraoperatif bilgisayarlı tomografi kullandık. Yöntem daha önce literatürde bildirilmemiştir.

Anahtar sözcükler: Osteoid osteoma; Pelvis; Tomografi eşliğinde.

Osteoid osteoma is a benign neoplasm seen most often in young males.^[1] It is encountered most frequently in long bones, however it rarely may be seen in the spine and short bones. It rarely occurs in flat bones as the pelvis. A nidus with surrounding sclerotic bone is a typical finding.^[1] Intraoperative confirmation of the localization of the nidus is wrought with difficulties.^[1] A case with of an osteoid osteoma in pelvis is presented. The presence of the excised nidus was confirmed by intraoperative computerized tomography by scanning the excised bone block. As far as we are acquainted with the literature the presented technique was not described before.

CASE REPORT

A 22 -year old male was enrolled in our outpatient clinic with a history of back pain radiating to the buttocks. His complaints had started six months before he was examined. His pain was severe at night and relieved with the use of salicylates. Physical examination revealed tenderness at the right side of the posterior pelvic region. Range of motion of the right hip was normal. Straight leg rising was negative and neurological examination was normal. Plain roentgenograms and the initial computerized tomography (CT) scan were inconclusive. Magnetic resonance imaging enabled us to make the diagnosis of osteoid osteoma located at the posterior acetabulum of the pelvic bone (Figure 1).

The diagnosis was also substantiated by a second CT scan (Figure 2). Complete removal of the nidus with intralesional resection of the tumor was planned. Postero-lateral approach was used to reach the osteoid osteoma. Excised bone was examined by computerized tomography that revealed the presence of the nidus and the surrounding sclerotic bone (Figure 3). The incision was closed by layers following the confirmation of the site of the osteoid osteoma. Pathological examination of the excised bone confirmed the diagnosis of osteoid osteoma. Pain subsided completely immediately after surgery. At the final follow up visit at three months postoperatively, the patient was pain free.

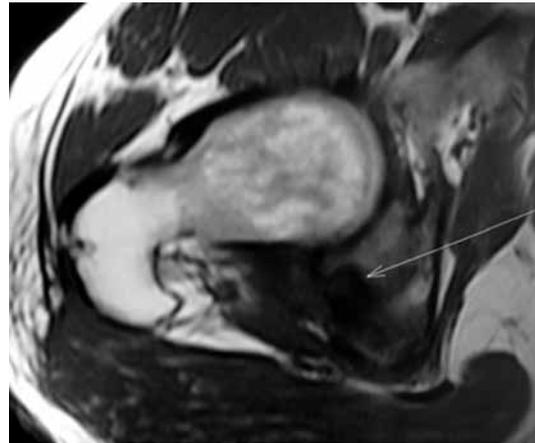


Figure 1. Magnetic resonance imaging of osteoid osteoma of the posterior acetabulum of the pelvic bone.

• Received: October 25, 2007 Accepted: November 15, 2007

• Correspondence: İrfan Ayan, M.D. • Aydınlikevler Mah. 2015. Sk. Beyoğlu Apt. 33140 Yenişehir, Mersin, Turkey
Phone: +90-324-337 43 00/1156 • Fax: +90-324-337 43 05 • e-mail: irfanayan@hotmail.com

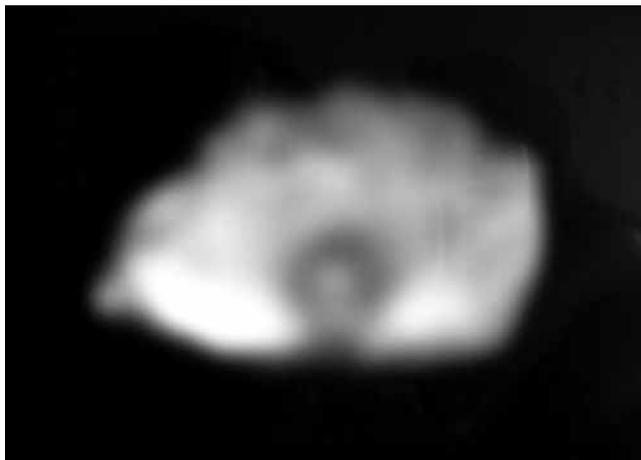


Figure 3: Computerized tomography scan of the excised bone showing the nidus and the surrounding sclerotic bone.



Figure 2: Computerized tomography scan of osteoid osteoma of the posterior acetabulum of the pelvic bone.

DISCUSSION

Osteoid osteoma is a small, painful benign bone tumor.^[2, 3] It is seen mostly in late childhood, adolescence and young adult age. A nidus with a perifocal sclerotic zone is characteristic.^[2] Pelvic involvement is rare.^[4-7] Routine roentgenograms are often diagnostic but computed tomography scans, magnetic resonance imaging, and bone scans are usually needed for the diagnosis of the lesion.^[1]

Although treatment consists of complete removal of the nidus, disappearance of the lesion after extended observation and symptomatic treatment was reported.^[3,8] Intraoperative localization of the foci and its removal are challenging^[3,9] and may be achieved by detection of preoperatively injected technetium, or roentgenographic examination of resected bone block. Alternatively laser photocoagulation under computed tomography guidance or percutaneous computed tomography guided thermocoagulation are depicted.^[10]

Voto et al. reported the localization of the osteoid osteoma nidus by computed tomography guidance and its removal by Kirschner wire and a punch placed over

it.^[11,12]

Intraoperative roentgenograms of the specimen are advised to substantiate complete removal of the nidus.^[1] In our case the localization of the site of osteoid osteoma was confirmed by computed tomography examination of the resected bone block. The possible site of the lesion was carefully defined by preoperative measurements made on its magnetic resonance image prints.

The novel method reported by us enabled confirmation of the correct localization of the nidus of a rarely found pelvic osteoid osteoma and its complete removal, thus affecting a cure without any radiation hazard imposed on the patient.

REFERENCES

1. Carnesale PG. Miscellaneous benign tumors of bone. In: Canale ST, editor Campbell's operative orthopedics. 9th ed. St. Louis: Mosby; 1998. p. 691-2.
2. Campanacci M, Ruggieri P, Gasbarrini A, Ferraro A, Campanacci L. Osteoid osteoma: Direct visual identification and intralesional excision of the nidus with minimal removal of bone. *J Bone Joint Surg Br* 1999;81:814-20.
3. Rolf O, Ettl V, Raab P. Unusual localization of an osteoid osteoma. *Arch Orthop Trauma Surg* 2006;126:53-6.
4. Cohen I, Rzetelny V. Osteoid osteoma of the acetabulum. A case report. *Clin Orthop Relat Res* 1994;304:204-6.
5. Mott MP, Meehan RE, Zhu H. Ilioinguinal approach to manage benign pelvic and acetabular tumors. *Am J Orthop* 2001;30:554-9.
6. Parlier-Cuau C, Nizard R, Champsaur P, Hamze B, Quillard A, Laredo JD. Osteoid osteoma of the acetabulum. Three cases treated by percutaneous resection. *Clin Orthop Relat Res* 1999;65:167-74.
7. Saglik Y, Omeroglu H, Mergen E. Osteoid osteoma of the pubic bone. Report of a case. *Acta Chir Belg* 1996; 96:133-4.
8. Kneisl J, Simon MA. Medical management compared with operative treatment for osteoid osteoma. *J Bone Joint Surg* 1992;74:179-85.
9. Guyot-Drouot MH, Migaud H, Cotten A, Cortet B, Delezenne A, Chastanet P, Duquesnoy B. Long-term efficacy of percutaneous drill-biopsy under computed tomography guidance of osteoid osteomas of the hip and femur. A review of seven cases. *Joint Bone Spine* 2000;67:204-9.
10. Spouge AR, Thain LM. Osteoid osteoma: MR imaging of two untreated lesions. *Clin Imaging* 1999;23:254-8.
11. Voto SJ, Cook AJ, Weiner DS, Ewing JW, Arrington LE. Treatment of osteoid osteoma by computed tomography-guided excision in pediatric patients. *J Pediatr Orthop* 1990;10: 510-3.
12. Ofluoglu O, Erol B, Mik G, Coskun C, Yildiz M. Image-guided minimal invasive surgical resection of osteoid osteomas of the long bones. *Acta Orthop Traumatol Turc* 2006;40:207-13.