

A CASE REPORT: RADIOFREQUENCY ABLATION FOR OSTEOID OSTEOMA

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ABSTRACT

Aims: Osteoid osteomas are benign bone-forming tumors which usually occur in long bones of young males. Its most significant finding is severe pain caused by nidus, increasing during nights. The application of radiofrequency ablation is becoming a widespread treatment method. In this case presentation, the aim is to discuss the application of radiofrequency ablation with its different aspects.

Case Report: Fourteen-year-old male patient had a history of left knee pain for 3 years. After his consultation at Trakya University Orthopaedics and Traumatology Outpatient Clinic, it was confirmed that the pain increases during night and it is localized in left thigh. According to these symptoms, radiological examinations performed to the patient. Taking radiology tests results into consideration, the patient was diagnosed with osteoid osteoma and treated by radiofrequency ablation.

Conclusion: Osteoid osteoma is a surgical bone lesion but in late period radiofrequency ablation replaces open surgery because it has a lower risk of relapse, faster recovery, shorter hospitalization time and faster ambulation.

Keywords: Osteoid osteoma, benign, nidus, RFA

INTRODUCTION

Osteoid osteoma (OO) is an osteogenic benign tumor, constituting 3% of all bone tumors and usually occurring in young males and it is characterised by its clear borders and reactive bone production in the surrounding area (1). The most common age interval is 5-25. Males are twice as likely as females to develop OO. It occurs in long bones more often than flat bones and in lower limbs more often than upper limbs. The most frequent localization is the proximal area of femur, followed by tibia. In more than half of the cases, the lesion is in one of these two bones (2).

In children, OO of long bones may cause elongation or bending of the bone. While the pain level varies, relaxation does not relieve pain and in almost all cases night pain is characteristic. Non-steroid anti-inflammatory medication is reported to cease the pain.

Nidus is a lytic area surrounded by sclerosis and cortical thickening. In radiography, OO is usually seen as a small (<1 cm), round or elliptic radiolucent area called nidus, with an intracortical localisation (3). To locate the

nidus in patients with a suspicion of OO computerized tomography (CT) and radiography are the best methods, while CT is especially helpful in cases with a very small lesion or when the nidus cannot be confirmed because of dense periosteal reaction. CT can confirm the spread of the lesion precisely and thus allow localizing it (4-5).

Apart from medical and surgical treatments, in recent years radiofrequency ablation (RFA) also stands out as another method for treatment. The treatment of RFA was firstly defined in 1989 and the first results were published in 1992 (6-7). Complications and relapses are considerably rare in RFA, moreover it is fast and inexpensive, and does not require hospitalizing. The patients recover faster and their hospitalization time is shorter, besides they are ambulated faster (8).

CASE REPORT

Fourteen-year-old male patient consulted Trakya University School of Medicine Orthopedics and Traumatology Outpatient Clinic with left knee pain for 3 years. With a more detailed anamnesis, it was confirmed

that the pain increases during night and it is localized in left thigh. Radiographic examination revealed a cortical thickening in posteromedial cortex of left femur (Figure 1).



Figure 1: Cortical thickening in posteromedial cortex of left femur

Thin-section CT scanning of the area with cortical thickening revealed a nidus structure localized in posteromedial cortex of the femur (Figure 2). The patient was encouraged to take Aspirin® when having pain. The patient reported a decrease in pain after using Aspirin®. His Visual Analog Scale (VAS) of pain decreased to 1 over 10. With that, OO was mentioned for the diagnosis. The patient with OO was treated with RFA accompanied by CT under general anesthesia.



Figure 2: Nidus localized in posteromedial cortex of the femur.

After sterilization, a CT scan was performed to view the lesion in bone tissue. Later, a RF needle was placed into the area with tumor and the area was damaged with thermal energy. The process consisting of preparing the patient for the procedure, application of anesthesia, sterilization, placing the needle into the tumor and thermal ablation took roughly 1-2 hours.

DISCUSSION

OO is a disease which needs to be considered in adolescent patients with extremity pain but with no history of trauma. OO is characterized by its nidus. Nidus is a hypervascular structure consisting of osteoid and woven bone and it produces PGE2, thus increasing the amount of prostaglandins and causing pain (9). The complaints of pain which starts during night and decreases through morning must be questioned and a sensitivity to non-steroid anti-inflammatory medication must be assessed (9). OO can be cured with numerous treatment approaches, firstly being medical, surgery and percutaneous treatments. The purpose of treatment is the excision or destruction of the nidus (10).

Recently, instead of these methods radiofrequency ablation (RFA) started being utilized. RFA provides a lot of advantages. It has a lower risk of relapse, faster recovery, shorter hospitalization time and faster ambulation. For this reason we used the RFA on our patient. However, the treatment of lesions located on the spine or close to neurovascular structures with the RFA is not recommended due to probable thermal damage. The RFA treatment of lesions larger than 1 cm may result in a partial ablation nidus and thus the complaints can continue (11). Therefore a thorough decision must be made when choosing the treatment method.

In conclusion, in 5-25 years old male patients with chronic night pain and a response to medication like non-steroid anti-inflammatory agents or salicylates OO must be considered and its differential diagnosis must be made. Since any delay in the treatment of a developing child may result in a permanent damage, early diagnosis is important. It must be kept in mind that OO may occur in many different age groups and it may have different clinical progresses and RFA treatment must be considered.

Acknowledgement

We thank Prof. Hakan Gençhellaç, Trakya University Department of Radiology, for performing radiofrequency ablation treatment.

Ethics Committee Approval: N/A

Informed Consent: Written informed consent was obtained from the participants of this study.

Conflict of Interest: The authors declared no conflict of interest.

Financial Disclosure: The authors declared that this study received no financial support.

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