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Efficacy of percutaneous radiofrequency ablation of osteoid osteoma in children

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Abstract

Background

Percutaneous radiofrequency (RF) ablation of osteoid osteoma has high technical and clinical success rates. However, there are limited data on its use in the treatment of osteoid osteoma in children.

Objective

To assess the safety and efficacy of CT-guided percutaneous RF ablation of osteoid osteoma in children and compare the outcomes with published data on its use in patients unselected for age.

Materials and methods

From January 2003 to July 2006, 23 children with osteoid osteoma were treated with CT-guided RF ablation using a straight rigid electrode. Their mean age was 11 years (range 3.5–16 years) and there were 15 boys and 8 girls. The procedures were carried out under general anaesthesia. Follow-up was performed to assess technical and clinical outcome. The mean follow-up period was 2.5 years (range 13–49 months).

Results

Technical success was achieved in 21 children (91.3%). Failure occurred in two children, in one due to failure to adequately localize the nidus within the dense sclerosis and in the other because of a short ablation time (2 min) because he developed hyperthermia. Clinical success was achieved in 18 patients within 2–5 days (primary clinical success rate 78.2%). These patients were allowed to fully weight-bear and function without limitation 1 week after the procedure. Pain recurrence was observed in two patients; one was treated successfully with a second ablation after 6 months (secondary clinical success rate 82.6%). Hyperthermia was observed in two patients during the procedure. Three other minor

complications were observed: wound infection in one child and skin burn in two children. No major immediate or delayed complications were observed.

Conclusion

Percutaneous CT-guided RF ablation is an effective and safe minimally invasive procedure for the treatment of osteoid osteoma in children. It has high technical and clinical success rates that are slightly lower than those of patients with a wider range of ages.

Keywords

Osteoid osteoma Radiofrequency ablation Children

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