Paradoxic hypertrophy of the sciatic nerve

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An asymptomatic 14-year-old boy with a right, above-knee amputation for osteosarcoma underwent a surveillance MRI of the lower extremities. It revealed an elliptical tubular structure of high signal intensity compared to muscle on

Fig. 1 Coronal STIR image

Fig. 2 Axial fat-saturated T2-W image

coronal STIR (Fig. 1) and axial fat-saturated T2-W (Fig. 2) images along the medial right thigh, representing a hypertrophied sciatic nerve.

Paradoxic sciatic nerve hypertrophy has been reported following lower limb amputation for malignant [1] and nonmalignant [2] conditions. Nerve hypertrophy is greatest near the transection site and extends proximally. It is termed paradoxical because proximal nerve atrophy usually ensues after transection [1]. Larger nerve diameters are associated with higher amputation level and longer duration after surgery, but not with pain complaints. The etiology is unclear and may involve dysregulated axonal neurofilament transport [1, 2]. Appropriate distinction of this benign process from a residual or locally recurrent tumor averts an unnecessary biopsy.

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