

Evidence of Entrapment Neuropathy in Primary Inguinal Hernia

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Background:

Neurectomy of the ilioinguinal nerve during primary inguinal hernia repair has been shown to decrease postoperative pain. Similar to carpal tunnel syndrome, in which the median nerve becomes swollen in response to local entrapment, the ilioinguinal nerve may be grossly enlarged at the external inguinal ring. This premise has never been objectively studied.

Methods:

This is a prospective study in which 35 patients underwent open primary inguinal herniorrhaphy and routine neurectomy. Ilioinguinal nerves with thickening at the external inguinal ring were divided into two 1cm segments: non-thickened specimens proximal to the external ring (designated "Proximal") and grossly thickened specimens just beyond the external ring (designated "Distal"). Ilioinguinal nerves with a uniform diameter were not divided and were designated "Uninvolved." A neuropathologist performed blinded histologic evaluation of H&E stained cross and longitudinal sections.

Results:

Of the 35 patients, 4 had absent ilioinguinal nerves, 1 had traumatic neuroma and 8 had uniform nerve diameters (Uninvolved), yielding 22 thickened nerves with Proximal and Distal specimens for examination. Uninvolved nerves compared to Proximal nerves showed no statistical difference on any parameter. Paired comparison of Proximal and Distal nerves revealed a greater overall diameter ($P<0.001$) with epineurium as well as a greater nerve-specific diameter ($P<0.003$) in Distal nerve segments. Semi-quantitative results (fascicles, perineurium, myxoid content) showed no statistically significant difference between Proximal and Distal nerve segments.

Conclusion:

In primary inguinal herniorrhaphy, nerve enlargement consistent with entrapment neuropathy occurs just beyond the external inguinal ring in 63% of patients. The nerve enlargement in inguinal hernias is similar to entrapment neuropathy as observed in carpal tunnel syndrome. Since measurable nerve enlargement in carpal tunnel cases is associated with increased pain, entrapment neuropathy in primary inguinal hernia deserves further study with the goal of decreased post-operative pain.