

Diagnostic Yield of Two Carpal Tunnel Syndrome–Based Screening Pathways for Early Detection of Transthyretin Cardiac Amyloidosis

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Background: Bilateral carpal tunnel syndrome (CTS) may precede transthyretin cardiac amyloidosis (ATTR-CM) by several years. We evaluated two complementary CTS-based screening strategies for early ATTR-CM detection.

Methods: In this single-centre observational study, 198 patients aged >50 years undergoing surgery for bilateral CTS underwent intraoperative tenosynovial biopsy. Patients with transthyretin (TTR)-positive amyloid deposits were referred for cardiac evaluation. Separately, 89 patients with bilateral CTS surgery 5–15 years previously underwent echocardiographic screening; those with left ventricular wall thickness ≥ 12 mm were referred for ^{99m}Tc-PYP scintigraphy. ATTR-CM was diagnosed by grade 2–3 myocardial uptake in the absence of monoclonal protein evidence, followed by TTR genotyping.

Results: TTR-positive tenosynovial amyloid was identified in 21/198 patients (10.6%, 95% CI 7.0–15.7). TTR-positive patients were older than biopsy-negative patients (78.0 vs 61.0 years; $p < 0.001$) and more frequently male (57.1% vs 26.0%; $p = 0.005$). ATTR-CM was confirmed in 5/198 biopsy-screened patients (2.5%) and in 5/21 patients with TTR-positive deposits (23.8%); the remaining 16 had no confirmed cardiac involvement at baseline. In the delayed echocardiographic pathway, 22/89 patients were referred for scintigraphy, 21 completed testing, and 3 were diagnosed with ATTR-CM (3.4%). Overall, 8/287 screened patients (2.8%, 95% CI 1.4–5.4) were diagnosed, all with wild-type ATTR-CM.

Conclusions: Intraoperative tenosynovial biopsy and delayed echocardiographic screening both identified previously unrecognized wild-type ATTR-CM. Bilateral CTS may provide a practical entry point for targeted ATTR-CM screening and surveillance.