Dupuytren’s Cord Involving the Septa of Legueu and Juvara: A Case Report

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A patient with Dupuytren’s disease with involvement of the palmar fascial complex and digital contracture is described. A vertical cord had developed in the transverse ligament of the palmar aponeurosis fibers and the underlying septa of Legueu and Juvara. The cord was composed of a pretendinous band, transverse ligament of the palmar aponeurosis, and septum of Legueu and Juvara. The cord was attached deeply in the soft tissue confluence of the sagittal band, palmar plate, and interpalmar plate ligament. Involvement of the transverse ligament of the palmar aponeurosis and septa of Legueu and Juvara in Dupuytren’s disease is rare. Understanding of the normal and pathologic fascial anatomy explains their simultaneous involvement and is necessary for complete ablation of the diseased tissue. (J Hand Surg 2002; 27A:344–346. Copyright © 2002 by the American Society for Surgery of the Hand.)

Key words: Dupuytren’s disease, Legueu and Juvara septa.

The cause of Dupuytren’s disease is unknown. The disease is characterized by a benign fibroproliferative involvement of palmar and digital fascial structures. The most frequently affected anatomic structures in the palm are the pretendinous bands with formation of pretendinous cords. Spiral bands, natatory ligaments, and digital fascial structures are less frequently affected. The radial side of the hand, including the commissural bands, is involved in severe cases. Cleland’s ligaments, transverse retinacular ligaments, oblique retinacular ligaments, transverse ligaments of the palmar aponeurosis (TLPA), and septa of Legueu and Juvara are not believed to be involved in the disease process.1–4 Although the involvement of septa of Legueu and Juvara has been debated, the development and origin of a vertical cord have not been precisely addressed. There have been a few reports of disease extending proximal to the palm.5–7 We report a case of Dupuytren’s disease extending to the TLPA and septa of Legueu and Juvara.

Case Report

A 51-year-old right-handed white man had a 1-year history of bilateral palmar nodular thickening and progressive digital contracture with more rightsided involvement. The palmar and digital contractures on the right side had progressed and interfered with ability to use hand tools and work as an auto mechanic. He had no symptoms of stenosing tenosynovitis or of ectopic disease in the feet or genitals. A family history of a maternal grandmother with Dupuytren’s disease was noted. The patient smoked and consumed alcohol socially. He had a past coronary bypass but no other systemic diseases.

Examination of the right hand showed extensive and severe thickening of the entire palmar fascia, with prominent pretendinous cords in line with the
middle and ring fingers, and a digital cord in the small finger. There was a natatory cord in the second web space and a proximal commissural cord in the first web space, which is formed by the diseased longitudinal fibers of the TLPA. Full digital extension and abduction were limited. No ectopic disease or knuckle pads were found. Extensive fascieectomy extending to the small finger was done by an open palm technique. The entire palmar fascia was transformed into a thick nodular fibrotic diseased tissue. The pretendinous cord of the middle finger extended into the TLPA and continued toward the vertical fibers of the septa of Legueu and Juvara, which were clearly involved in the disease process (Figs. 1, 2). The septa of the radial and ulnar sides of the flexor tendons of the middle finger were reduced to vertical cords that were attached to the palmar soft tissue confluence. The vertical cords’ deep extensions were followed to their attachments and transected. The transverse palmar incision was left open to heal by secondary intention, and the digital and web space incisions were closed. The patient had no postoperative complications. Six weeks after surgery the open wound healed and he had near full digital flexion and extension. At the 6-month follow-up visit he reported no symptoms and had no functional impairment. Histologic examination of the diseased septa or vertical cords was typical of Dupuytren’s histology and showed an abundance of fibroblasts and collagen and a few myofibroblasts.

**Discussion**

The septa of Legueu and Juvara are normal anatomic structures that were originally described to extend from the “superficial transverse metacarpal ligament” to the “deep metacarpal ligament.” These vertical septa form 7 fibrous channels that separate the flexor tendons from the lumbrical muscles and neurovascular bundles. Recent anatomic descriptors clarified the relationships of the septa to be indirectly attached to the pretendinous bands that lie superficial to the TLPA. The septa extend deeply to insert in a soft tissue confluence that gives attachment to 5 structures: septa of Legueu and Juvara, palmar plate, interpalmal plate ligament, sagittal band, and A1 pulley. The septa therefore attach to the palmar pulley system of the digital flexor tendons that was described by Doyle. Although the palmar pulleys do not adhere as closely to the tendons as the digital
pulleys, Manske and Lesker\textsuperscript{12} found that they maintain the moment-arm and are therefore important for adequate excursion of the digital flexor tendons. The palmar aponeurosis pulley described by these investigators represents the condensed fibers of the TLPA. The term vertical cord was described previously\textsuperscript{10} but its origin was considered to be either from the septa of Legueu and Juvara or the terminal fibers of the pretendinous band that were described by McGrouther.\textsuperscript{13} In our patient a well-developed, thick, rounded vertical cord that clearly originated from the septa of Legueu and Juvara was documented.

The pretendinous bands, located superficial to the fibers of the TLPA, are most frequently involved in Dupuytren’s disease. The transverse fibers, which are not ordinarily involved in the disease process,\textsuperscript{5,7,8} are located between the pretendinous bands and the septa of Legueu and Juvara. Dupuytren’s disease extension from the pretendinous bands to the septa of Legueu and Juvara must involve the TLPA fibers. Although involvement of the TLPA and the vertical septa in Dupuytren’s disease is rare, our patient had both structures affected. These structures may be prone to be involved in patients with severe Dupuytren’s diathesis and extensive palmar fascial disease. In such cases, as much diseased tissue as possible, including the vertical cords, should be excised with care to identify and preserve the neurovascular structures close to these cords.

\textbf{References}