The clinical distribution of the Dupuytren’s disease cords in the thumb and first web was examined in 100 consecutive patients with Dupuytren’s disease. The precise anatomical relations of the cords were then studied in 25 patients undergoing Dupuytren’s surgery for thumb and first web space disease. Thumb and first web space involvement was found in 28% of hands affected by Dupuytren’s disease, and was the third most common site after the ring and little fingers. Operative findings showed that two major cords could be distinguished. One lying in the first web space and passing towards the insertion of the first dorsal interosseous muscle on the radial side of the index finger and the other lying on the radial aspect of the thumb.

While the distribution of the disease has been studied clinically there has been no detailed study of the arrangement of Dupuytren’s tissue on the radial side of the hand at operation.

One hundred consecutive patients with Dupuytren’s disease admitted for surgery were examined in two plastic surgery units (The Welsh Regional Plastic Surgery Unit and the Plastic Surgery Unit at Newcastle upon Tyne). The presence and distribution of Dupuytren’s disease affecting their hands, including the thumb, index finger and first web space, was recorded.

The precise anatomical relations of diseased cords demonstrated at operation were recorded in a separate group of 25 patients undergoing surgical resection of Dupuytren’s tissue on the radial side of the hand. Finally, two fresh cadaveric hands were dissected to display the normal fascial architecture of the palmar aponeurosis and this has been correlated with the operative and clinical findings.

One hundred consecutive patients with Dupuytren’s disease were examined, of which 85 were affected bilaterally. Thirty-eight of these 100 patients had evidence of Dupuytren’s disease affecting the thumb and first web and 14 of those 38 were affected bilaterally. The first web and thumb was the third most commonly affected site after the ring and little fingers. Of the 185 hands involved with Dupuytren’s disease, 52 (28%) had disease of the thumb and first web (Fig 1).

Patients with Dupuytren’s disease affecting the thumb and first web were similar to others, except that they had a reduced first web span and had undergone more previous operations (Table 1). They did not have an increased incidence of factors which are associated with a Dupuytren’s diathesis (Heuston, 1963) such as a positive family history, an early onset, bilateral disease, rapid progression, ectopic foci and diffuse involvement.

A group of 25 other patients had thumb and first web disease of sufficient severity to warrant surgery (contracture, reduced first web span or discomfort), and they were compared to the 38 patients with thumb and first web space disease in the survey group. It was found that their average age was significantly greater (67 years compared to 59 years) and that they had had the disease for significantly longer (16 years compared to 11 years) (t-test, $P < 0.05$ for both). These findings do not support the view that radial disease occurs in a younger group of patients or that there is a tendency to rapid progression. At surgery the site of the Dupuytren’s tissue was recorded (Fig 2). In 23 of the 25 patients there was a distal commissural cord (Fig 3), in nine there was a cord to the radial side of the thumb, and in 12 there was a skin nodule. In two cases transverse strands could be identified in the proximal commissural position but both were insubstantial. The commissural cord arose from skin in the vast majority, and was inserted into the tendon of, or fascia over, the first dorsal interosseous and frequently into both. In nine cases it continued into the radial cord of the index finger. The radial cord arose from the palmar fascia and the fascia over the thenar muscles or skin and was inserted into the skin on the radial side of the thumb, the sheath of the flexor pollicis...
longus at the level of the A2 pulley or the capsule on the radial side of the interphalangeal joint (Table 2).

The cadaveric dissections showed that the fascial structures of the thumb and first web were much less well developed than those in the mid-palmar area and consisted of condensations of fibrous strands within the sub-dermal fat with frequent attachments to the dermis. There were two sites where the fascia was better developed, though much less well developed than the fascia in the mid-palm area. One site was over the thenar muscles where the fascia was orientated longitudinally.

![Clinical distribution of Dupuytren's disease](image1)

**Fig 1** The distribution of Dupuytren’s disease in 185 affected hands. The thumb and first web space were affected in 28% of cases.

**Table 1 — Clinical details of 100 consecutive patients with Dupuytren’s disease (185 hands affected)**

<table>
<thead>
<tr>
<th></th>
<th>Thumb and first web involved</th>
<th>Thumb and first web not involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>60 (2)</td>
<td>59 (2)</td>
</tr>
<tr>
<td>Sex (m:f)</td>
<td>4.0 : 1</td>
<td>4.4 : 1</td>
</tr>
<tr>
<td>Family history (%)</td>
<td>36%</td>
<td>33%</td>
</tr>
<tr>
<td>Duration of disease (yr)</td>
<td>13 (1)</td>
<td>10 (1)</td>
</tr>
<tr>
<td>No. of previous operations</td>
<td>1.7 (0.4)*</td>
<td>0.3 (0.1)*</td>
</tr>
<tr>
<td>First web spread</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle (degrees)</td>
<td>65 (2)*</td>
<td>75 (1)*</td>
</tr>
<tr>
<td>Nail fold to nail fold distance (mm)</td>
<td>128 (2)#</td>
<td>136 (2)#</td>
</tr>
</tbody>
</table>

Results expressed as mean (SEM).

* $P<0.001$ and $\# P<0.01$ (t-test).

![Operative distribution of radial Dupuytren's disease](image2)

**Fig 2** The operative findings in 25 hands. Two major patterns of disease can be seen (commissural and radial). The hands varied in the degree of development of the individual cords.

![Fig 3](image3)

**Fig 3** Fasciectomy for Dupuytren’s disease affecting the radial side of the hand showing (a) the commissural cord in the first web, (b) the radial cord.
towards the radial side of the thumb. The second site was the free edge of the web space where the fascia consisted of two laminae, one of which passed in a palmar direction and the other which was less substantial and passed towards the dorsal side of the thumb.

**DISCUSSION**

The cadaveric dissections in this study revealed similar findings to those of larger studies (Stack, 1973; Tubiana et al., 1982). The fascia covering the thenar eminence is poorly developed ulnarly but is denser on its radial aspect. The transverse band of fascia which crosses the edge of the first web space consists of two laminae which pass to either side of the thumb. The palmar lamina is better developed and is in continuity with the superficial transverse ligament of the palm.

Stack (1973) considered that Dupuytren’s disease of the thumb consisted of an “L-shaped” band with its apex in the region of the ulnar sesamoid bone. The longitudinal strand comes from the palmar triangle and joins the transverse strand, which comes from the base of the index finger where it is in continuity with the superficial transverse ligaments of the palm. The present study confirmed these findings though there was more usually a cruciate pattern with the commissural cord passing across the radial cord to be inserted into the dermis on the radial side of the thumb. The cross-over point, or the apex of the “L” overlay the radial side of the tendon sheath of the flexor pollicis longus at the level of the metacarpophalangeal joint rather than the ulnar sesamoid bone as described by Stack. None of the operative cases in this study exhibited a longitudinally orientated cord on the ulnar side of the thumb.

Tubiana et al. (1982) identified four patterns of disease: a distal commissural, a longitudinal radial, a pretendinous cord inserted into the fibrous tendon sheath of the flexor pollicis longus and a band lying proximally in the first webspace. In the cases studied here it was not possible to identify a pretendinous cord in the thumb as a distinct structure from the radial cord.

In his description of Dupuytren’s disease affecting the fingers, McFarlane (1974) found that there was frequently a distal extension of the pretendinous cord which may cause contracture of the proximal interphalangeal joint. The thumb differs from the fingers in this regard and a pretendinous cord was never found and there was never a contracture of the interphalangeal joint. However, this rare pattern of disease affecting the thumb has been described (Cleland and Morrison, 1986).

In two of our 25 cases there was a small proximal commissural cord which corresponded to the fourth group described by Tubiana et al. (1982). However each of these cords consisted of fine strands and was insubstantial. In the cadaveric dissections definite fascial strands could not easily be identified in the corresponding position. Thus Dupuytren’s disease affecting the first web space may be considered to consist of two significant cords, one lying transversely in the distal web and one lying longitudinally on the radial side of the thumb. When both are present a cruciate pattern occurs with a commissural cord crossing superior to the radial one to insert into the dermis on the radial side of the thumb. The cross-over point is over the radial side of the flexor sheath at the level of the metacarpophalangeal joint.

Dupuytren’s disease affecting the thumb and first web rarely produces disability. The usual indications for surgery are reduction of the first web span or discomfort. The findings of the present study do not suggest that thumb and first web disease are associated factors indicating a Dupuytren’s diathesis or are more common in patients whose disease progresses rapidly (Tubiana et al., 1982). The 25 patients who underwent surgery for thumb and first web disease had had the disease for long periods and invariably had ring and little finger disease which frequently had required surgery. These patients may represent a group with a more intractable form of disease.

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**References**


