Carpal tunnel syndrome with space occupying lesion

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Introduction
There are two surgical procedures for carpal tunnel syndrome (CTS); open carpal tunnel release (OCTR) and endoscopic carpal tunnel release (ECTR).

ECTR is low-invasive, and usually selected in our hospital. However, if space occupying lesion (SOL) in the carpal canal is suspected, OCTR should be selected to improve the postoperative outcomes and to avoid the complications and recurrence.

Preoperative diagnosis of SOL in the carpal canal is important to perform carpal tunnel release low-invasively and safely.

Purpose
To establish the diagnostic algorithm to detect SOL for CTS preoperatively.

Materials & Methods
17 hands in 16 cases were treated operatively for CTS with SOL.

<table>
<thead>
<tr>
<th>gender</th>
<th>Male</th>
<th>Female</th>
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<tbody>
<tr>
<td>age</td>
<td>18 - 84 years (mean age: 60.4 years)</td>
<td></td>
</tr>
<tr>
<td>side</td>
<td>Right (5)</td>
<td>Left (10)</td>
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Variety of SOL, diagnostic imaging methods, and correlation between imaging methods and operative findings were investigated in all cases.

Results
The origins of SOL:

- calcification: 4 hands
- gout nodule: 2 hands
- synovitis: 6 hands
- cystic lesion: 1 hand
- bifid median nerve: 3 hands (2 cases)
- lipofibromatous hamartoma: 1 hand

Discussion

1) Cystic lesion: 1 hand
   - X-ray: no abnormal findings
   - US: echo free space in the carpal tunnel
   - MRI: cystic lesion is detected clearly and more objectively

2) Cystic lesion: 1 hand
   - X-ray: no abnormal findings
   - US: “eyeglass like deformity” of the median nerve
   - Doppler waveform can visualize the persistent median artery.

3) Lipofibromatous hamartoma: 1 hand
   - X-ray: no abnormal findings
   - US: the enlarged-honeycomb median nerve
   - MRI: thickened nerve fascicles surrounded by fibroadipose tissue

Conclusions
The combination of X-ray and US is convenience, time-saving and cost-effective method for screening of SOL associated with CTS. Additional CT and/or MRI should be examined as necessary, if SOL is detected by X-ray and US.