Temporomandibular joint

MRI Protocols of the ESSR Arthritis Subcommittee

Acronyms

Ax= axial
CE= contrast enhanced
Cor= coronal
FOV= field of view
FS= fat suppressed
PD= proton density
Sag= sagittal
TE= echo time (ms)
TMJ= temporomandibular joint
TR= repetition time (ms)
MRI scan

- Patient in supine position with the head first
- Head coil
Localizer: Inflammatory disease

**Axial plane:** refer to the sagittal plane, orient the scan parallel to the hard palate and cover the entire TMJ from the corpus callosum up to the angle of the jaw. If the head is tilted, the angulation has to be adjusted on the coronal plane.

**Sagittal plane:** refer to the axial plane, orient the scan perpendicular to the condyle of the mandible (i.e., of the same side that has to be examined). Check the correct positioning on the other two planes. If the head is tilted, the angulation has to be adjusted on the coronal plane.

**Coronal plane:** refer to the axial plane, orient the scan parallel to the condyle of the mandible (i.e., of the same side that has to be examined). Check the correct positioning on the sagittal plane.
Recommended Sequences: Inflammatory Disease

- Cor T1 (or Ax T1)
- Ax T2 FS (or STIR or TIRM)
- Cor T2 FS (or STIR or TIRM)
- Cor T2
Localizer:
Joint derangement

*Sagittal oblique:*
- refer to the axial plane
- orient the scan perpendicular to the condyle of the mandible (i.e., of the same side)
- check the correct positioning on the other two planes
- the number of slices has to cover the joint from side to side

The MR scan has to be performed:
- with the mouth opened and closed
- on the right and on the left TMJ
Recommended Sequences:
Joint derangement

Sag oblique PD FS mouth closed
Sag oblique PD FS mouth opened
Recommended Sequences:
Joint derangement

Sag oblique PD mouth closed

Sag oblique PD mouth opened
## MRI protocols

<table>
<thead>
<tr>
<th>Recommended Sequences</th>
<th>FOV (mm)</th>
<th>Slice thickness (mm)</th>
<th>TR (ms)</th>
<th>TE (ms)</th>
<th>Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cor T1</td>
<td>230</td>
<td>3</td>
<td>420-620</td>
<td>10</td>
<td>256x256</td>
</tr>
<tr>
<td>Ax T2</td>
<td>230</td>
<td>5</td>
<td>2500-5500</td>
<td>90</td>
<td>256x256</td>
</tr>
<tr>
<td>Cor T2 FS</td>
<td>230</td>
<td>3</td>
<td>2500-5000</td>
<td>100</td>
<td>256x256</td>
</tr>
<tr>
<td>Cor T2</td>
<td>230</td>
<td>3</td>
<td>2200-3200</td>
<td>100</td>
<td>256x256</td>
</tr>
<tr>
<td>CE T1 FS (for synovitis and/or osteitis)</td>
<td>140</td>
<td>2.5</td>
<td>420-620</td>
<td>10</td>
<td>256x256</td>
</tr>
<tr>
<td>PD FS oblique mouth closed &amp; opened</td>
<td>140</td>
<td>2.5</td>
<td>2200-3200</td>
<td>24</td>
<td>256x256</td>
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<td>PD oblique mouth closed &amp; opened</td>
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