Possible link between extraction of wisdom teeth and temporomandibular disc displacement with reduction: matched case control study

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Accepted 3 October 2004
Available online 23 November 2004

KEYWORDS
Third molar; TMJ; Wisdom tooth

Summary We undertook a case control study that compared 220 patients diagnosed with disc displacement with reduction at the Dental Hospital of Manchester with 1100 controls drawn from participants in the 1998 Adult Dental Health Survey. We found that patients were not significantly more likely to have had extraction of third molars than controls; odds ratio: 1.28, 95% CI: 0.96–1.71. Also only 21 patients (9.5%) reported having had extraction of third molars in the 5 years before their diagnosis. We conclude that for most patients extraction of third molars is unlikely to have caused disc displacement with reduction.

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Introduction

Disc displacement with reduction is diagnosed in 30%–40% of patients attending the temporomandibular disorder (TMD) clinic at the University of Manchester Dental School. It occurs when the disc of the temporomandibular joint is displaced anteriorly or medially or when the bones of the joint become deranged. It commonly causes pain, clicking of the joint, and restriction of movement. It has been suggested that trauma during extraction of a third molar may have a role in the onset of this condition. If a link were found it would be important because extraction of third molars is common. We undertook a case control study to estimate if patients diagnosed with disc displacement with reduction were more likely to have had their third molars extracted than controls. We also report for patients with clinically diagnosed disc displacement with reduction the interval from the extraction of their third molars to the diagnosis of their condition.

Patients and methods

Cases were selected from patients with a diagnosis of disc displacement with reduction who attended the TMD clinic at the University of Manch-

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Thecasenotesof910patientswhohadattendedtheTMDclinicerewereviewedand336patientswere identifiedwiththedragnosisofdiscdisplacement withreduction.Ofthesepatients,23wereunder 18years of age and were not included in the study. The remaining 313 patients were sent the question- naire. The age of the patients ranged from 18 to 83 years. The casenotes of 910 patients who had attended the TMD clinic were reviewed and 336 patients were identified with the diagnosis of disc displacement with reduction. Of these patients, 23 were under 18 years of age and were not included in the study. The remaining 313 patients were sent the question- naire. The age of the patients ranged from 18 to 83 years. The casenotes of 910 patients who had attended the TMD clinic were reviewed and 336 patients were identified with the diagnosis of disc displacement with reduction. Of these patients, 23 were under 18 years of age and were not included in the study.

In the first round 177 people (58%) responded to 304 questionnaires delivered (nine questionnaires were returned unopened by the postal service) and in the second round 45 people (33%) responded to 138 questionnaires delivered. This made a total of 222 patients who responded, two patients were ex- cluded, one because they did not wish to partic- ipate, and one who did not complete the ques- tionnaire, therefore, 220 patients were included in the casecontrolstudyofwhich37(17%)weremen and 183 (83%) were women. The response rate was higher in older patients; 61 patients (58%) under 30 responded, compared with 113 (75%) aged between 30 and 50, and 46 (81%) aged over 50 years. Of the 220 patients 99 (45%) reported having had a wisdom tooth removed. Table 1 shows the results by sex for the first and second rounds of questionnaires.

In the 1998 Adult Dental Health Survey 5820 (86%) of the subjects knew whether they had had a wisdom tooth removed. From these 1100 controls were chosen; 185 were men and 915 were women. In total 429 controls (39%) reported that they had had a wisdom tooth removed at some time during their lives. The odds ratio between the cases and controls for reporting ever having had a wisdom tooth removed was 1.28 (95% CI: 0.96–1.71). Of the 99 patients who reported having had a wisdom tooth removed two reported that the operation was done after the onset of the diagnosis of disc displacement with reduction. Of the remaining 97 patients 21 (22%) had had the operation within
Table 1  Reporting of extraction of a third molar in men and women in each round of questionnaires.

<table>
<thead>
<tr>
<th></th>
<th>First round questionnaire</th>
<th>Second round questionnaire</th>
<th>Both rounds combined</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 175)</td>
<td>(n = 45)</td>
<td>(n = 220)</td>
</tr>
<tr>
<td>Have had third molar extracted</td>
<td>13 (46)</td>
<td>3 (33)</td>
<td>16 (43)</td>
</tr>
<tr>
<td>Never had third molar extracted</td>
<td>15 (54)</td>
<td>6 (67)</td>
<td>21 (57)</td>
</tr>
<tr>
<td>Total responses</td>
<td>28</td>
<td>9</td>
<td>37</td>
</tr>
</tbody>
</table>

Data are number (%).

Discussion

The proportion of patients who had had a third molar removed was higher but not significantly so than in the control population. This suggests that extraction of a third molar does not substantially increase the risk of developing disc displacement with reduction. While the higher proportion of cases than controls who reported having had a third molar removed might have occurred by chance alone it might also be explained if there was a response bias and patients who responded to the questionnaire were more likely to report extraction of a third molar than patients who did not respond. There is some evidence that this may have happened because the proportion of patients who reported extraction of a third molar was higher in responders to the first round questionnaire (48%) compared with 33%).

Population estimates of the proportion of adults who have had wisdom teeth removed are not routinely published. The control population, was therefore, compiled using the archived data from the 1998 UK Adult Dental Health Survey as this provides the only robust data to estimate the proportion of adults that have had wisdom teeth extracted in the UK. This control population is not ideal, firstly because it does not identify whether the teeth were removed from the upper or lower jaw, and ideally we should have compared the proportion of cases and controls who had their lower wisdom teeth removed, and secondly because it is possible that some members of the control group required treatment for undiagnosed disc displacement.

It has been suggested that extraction of a third molar that involves the mouth to be opened wide and the use of considerable force on the mandible might result in trauma to the temporomandibular joint. In patients with disc displacement with reduction this is biologically plausible and trauma to the temporomandibular joint may indeed occur in some cases. However, if important damage to the temporomandibular joint were routinely occurring during extraction of mandibular third molars it would be expected that a large proportion of patients diagnosed with disc displacement would report having recently had such an extraction. Only 21 (9.5%) of 220 patients reported that they had had a wisdom tooth extracted in the 5 years before they were diagnosed with disc displacement with reduction. This suggests that for over 90% of these patients third molar extraction is unlikely to have had an important causal role. Our data do not exclude the possibility that patients who have extractions of third molars under general anaesthesia and those who have a lengthy or traumatic procedure may have an increased risk of developing temporomandibular disorders, a question that could be answered only by a large prospective multicentre study, but it does suggest that for the overwhelming majority of patients attending a TMD clinic with disc displacement with reduction, extraction of a third molar was unlikely to have been the cause.

References


