Transoral transpharyngeal approach

The transoral transpharyngeal approach is the standard approach for transoral odontoidectomy and decompress the cervicomedullary spinal cord.

There are some significant risks associated with this approach, however, including infection, CSF leak, prolonged intubation or tracheostomy, need for nasogastric tube feeding, extended hospitalization, and possible effects of phonation. Other ventral approaches, such as transmandibular and circumglossal, endoscopic transcervical, and endoscopic transnasal, are also viable alternatives but are technically challenging or may still traverse the nasopharyngeal cavity. Far-lateral and posterior extradural approaches to the craniocervical junction require extensive soft-tissue dissection.

In the early 1990s, transoral surgical procedures were commonplace in neurosurgery, used for lesions extending from the sella turcica, clivus to the top of the fifth cervical vertebrae [1].

Although the standard technique of transoral surgery is conceptually simple, anatomic relationships are not so readily appreciated.

Today, its popularity has waned somewhat, mainly stemming from the many potential difficulties and complications it poses [2].

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Indications

Transoral surgery in the field of spine surgery has been used mostly for atlantoaxial lesions such as rheumatoid arthritis, spinal tumors and other inflammatory or infectious abnormalities. Severe cord compression due to the pannus in patients with rheumatoid arthritis sometimes demands direct decompression of the pannus and odontoidectomy rather than posterior decompression and fixation [4] [5].

Type I Basilar invagination: Basilar invagination without Chiari malformation. Tip of odontoid tends to be above Chamberlain's line, McRae's line, and Wackenheims line

Brainstem compression is due to odontoid process invagination. 85% can be reduced with traction.

Treatment: transoral surgery is recommended, usually accompanied by posterior fusion.

In cases with Chiari malformation ventral brain-stem compression, some authors advocate performing a transoral clivus-odontoid resection as they feel these patients may potentially deteriorate with posterior fossa decompression alone [6].

Atlantoaxial rotatory subluxation: For irreducible fixation, a staged procedure can be done with anterior transoral release of the atlantoaxial complex (the exposure is taken laterally to expose the atlantoaxial joints which must be done carefully to avoid injury to the VAs, soft tissue is carefully removed from the joints and the atlantodental interval, no attempt at reduction was made at the time of this 1st stage) followed by gradual skull traction and then a second stage posterior C1–2 fusion [7].

Isolated atlas fractures: Surgical options that do not involve arthrodesis include: posterior C1 screw placement, anterior transoral screw/plate placement.

Atlantoaxial subluxation (AAS) in Rheumatoid Arthritis: Posterior fusion alone does not provide adequate relief if the subluxation is irreducible, or if pannus causes significant compression (however, there may be some reduction of pannus after fusion). In these cases, transoral odontoidectomy may be indicated. Performing the posterior stabilization and decompression first allows some patients to avoid a second operation, and permits the remainder to undergo the anterior approach without becoming destabilized. Still, some surgeons do the odontoidectomy first [8] (requires the patient to remain in traction until the fusion). Reminder: the patient must be able to open the mouth greater than ≈ 25 mm in order to perform transoral odontoidectomy without splitting the mandible.

Basilar impression in rheumatoid arthritis: Irreducible cases: requires transoral resection of odontoid. May perform before posterior fusion (but then must be kept in traction while waiting for posterior fusion).

Transoral biopsy of C2 (axis) vertebral body lesions [9].

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see Transoral approach of anteriorly placed meningioma.

Complications

see Transoral approach complications.

Case reports

Transoral transpharyngeal approach case reports.

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