Endoscopic Endonasal Odontoidectomy case reports

In a case report from the Shinshu University Hospital, the extent of bone resection and anatomical orientation were confirmed intraoperatively. The postoperative course was uneventful and symptoms were improved after surgery.

The application of a hybrid operating room may make the endoscopic endonasal odontoidectomy (EEO) safe and precise for anterior decompression of craniovertebral junction (CVJ). This is the first case report describing the clinical experience of EEO in the hybrid operating room (HOR).

The 70-year-old man presented with a 2-month history of myelopathic gait disorder and swallowing disturbance. Neuroimaging analysis indicated medulla oblongata compression associated with basilar invagination. [1].

2013

One patient with basilar invagination caused by a congenital osseous malformation underwent endoscopic transnasal odontoidectomy combined with posterior reduction in a single operative setting. The purely endoscopic transnasal odontoidectomy was first conducted with the patient supine. The favorable anatomical reduction was then achieved through a posterior approach after the patient was moved prone.

The patient was extubated after recovery from anesthesia and allowed oral food intake the next day. No complications were noted, and the patient was discharged 4 days after the operation. Postoperative imaging demonstrated excellent decompression of the anterior cervicomedullary junction pathology. The patient was followed up for 12 months and remarkable neurological recovery was observed.

The endoscopic transnasal odontoidectomy is a better minimally invasive approach for anterior decompression and can make the posterior reduction easier because the anterior resistant force is eliminated. The subsequent posterior reduction can make decompression of the ventral side of the cervicomedullary junction more effective because the C-2 vertebral body is pushed forward. A combination of these 2 approaches has the advantages of minimally invasive access and a faster patient recovery, and thus is a valid alternative in selected cases [2].

2012

Patel et al., presented the case of a 10-year-old girl with a chronic type 3 atlantoaxial rotator fixation and significant spinal cord compression from basilar invagination and a displaced odontoid process. They performed an endoscopic endonasal odontoidectomy prior to posterior occiptocervical fusion on the patient. She was neurologically intact with a well-healed wound at 7-month follow-up [3]

2009

A 50 year-old woman with os odontoideum and posterior atlantoaxial subluxation, who underwent an occipitocervical fusion followed by endonasal endoscopic anterior decompression of the cervicomedullary junction (CMJ).

Occiput to C5 fusion was first undertaken in the prone position. After a wake-up test, the patient was flipped into a supine position for the endonasal endoscopic procedure. Anterior decompression was achieved by resecting the anterior arch of C1 and the os odontoideum with the aid of frameless stereotactic navigation.

The patient tolerated the procedure well and was extubated on the first postoperative day. Liquids were started that afternoon and advanced to a regular diet on the second postoperative day. The patient was discharged to rehabilitation after a short postoperative stay. Postoperative imaging demonstrated excellent decompression of the anterior CMJ pathology. At 3-month follow-up, the patient showed clear improvements in hand strength and ability to ambulate.

The endonasal endoscopic approach to the CMJ provides an effective and minimally invasive alternative for anterior decompression of irreducible CMJ pathology [4].

1)
Ogiwara T, Miyaoka Y, Nakamura T, Tsukada K, Yamazaki D, Ito K, Hanaoka Y, Koyama JI, Horiuchi T, Hongo K. Endoscopic endonasal odontoidectomy in the hybrid operating room: A case report. World Neurosurg. 2019 Aug 2. pii: S1878-8750(19)32113-8. doi: 10.1016/j.wneu.2019.07.197. [Epub ahead of print] PubMed PMID: 31382069.
2)
Yu Y, Hu F, Zhang X, Ge J, Sun C. Endoscopic transnasal odontoidectomy combined with posterior reduction to treat basilar invagination: technical note. J Neurosurg Spine. 2013 Nov;19(5):637-43. doi: 10.3171/2013.8.SPINE13120. Epub 2013 Sep 20. PubMed PMID: 24053376.
3)
Patel AJ, Boatey J, Muns J, Bollo RJ, Whitehead WE, Giannoni CM, Jea A. Endoscopic endonasal odontoidectomy in a child with chronic type 3 atlantoaxial rotatory fixation: case report and literature review. Childs Nerv Syst. 2012 Nov;28(11):1971-5. doi: 10.1007/s00381-012-1818-5. Epub 2012 Jul 5. Review. PubMed PMID: 22763656.
4)
Leng LZ, Anand VK, Hartl R, Schwartz TH. Endonasal endoscopic resection of an os odontoideum to decompress the cervicomedullary junction: a minimal access surgical technique. Spine (Phila Pa 1976). 2009 Feb 15;34(4):E139-43. doi: 10.1097/BRS.0b013e31818e344d. PubMed PMID: 19214083.