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Scriptwriter Name: Pallavi Sharma

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Title: Lateral Molar Approach-Driven Transoral Endoscopic Procedure for Benign Infratemporal Fossa Tumor Resection

Authors and Affiliations:

Shuai Chen^{1,2}, Bowen Yang^{1,2}, Xiaobo Dai^{1,2}, Guanru Wang^{1,2}, Xingzhi Zeng^{1,2}, Yongling Song¹, Guiquan Zhu^{1,2}, Chunjie Li^{1,2*}, Bing Yan^{1,2*}

¹State Key Laboratory of Oral Diseases & National Center for Stomatology & National Clinical Research Center for Oral Diseases, West China Hospital of Stomatology, Sichuan University

²Department of Head and Neck Oncology, West China Hospital of Stomatology, Sichuan University

Corresponding Authors:

Chunjie Li (lichunjie07@qq.com)
Bing Yan (yanbing_west@163.com)

Email Addresses for All Authors:

Shuai Chen (2545768360@qq.com)
Bowen Yang (516084218@qq.com)
Xiaobo Dai (3519201900@qq.com)
Guanru Wang (1697587644@qq.com)
Xingzhi Zeng (1551324615@qq.com)
Yongling Song (youle20232024@outlook.com)
Guiquan Zhu (zhugq@scu.edu.cn)
Chunjie Li (lichunjie07@qq.com)
Bing Yan (yanbing_west@163.com)

Author Questionnaire

1. We have marked your project as author-provided footage, meaning you film the video yourself and provide JoVE with the footage to edit. JoVE will not send the videographer. Please confirm that this is correct.

✓ Correct

2. Microscopy: Does your protocol require the use of a dissecting or stereomicroscope for performing a complex dissection, microinjection technique, or something similar? **NO**

3. Software: Does the part of your protocol being filmed include step-by-step descriptions of software usage? **NO**

4. Proposed filming date: To help JoVE process and publish your video in a timely manner, please indicate the proposed date that your group will film here: **09/29/2025**

Authors: Since we have protocol footage, this question is applicable for filming interview statements

When you are ready to submit your video files, please contact our China Location Producer, [Yuan Yue](#).

Current Protocol Length

Number of Steps: 09

Number of Shots: 12

Introduction

- 1.1. **Bing Yan:** Our research focuses on developing a scarless, transoral endoscopic technique to remove benign infratemporal fossa tumors while preserving critical nerves and vessels.

1.1.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera. *Suggested B-roll: Figure 4C and D*

What are the most recent developments in your field of research?

- 1.2. **Shuai Chen:** We've integrated real-time surgical navigation into our transoral endoscopic technique. This allows for precise tumor boundary mapping and more accurate extracapsular dissection, enhancing both safety and completeness of resection.

1.2.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera.

What technologies are currently used to advance research in your field?

- 1.3. **Xiaobo Dai:** We utilize advanced technologies, including high-resolution endoscopy, low-temperature plasma ablation for precise dissection, and intraoperative nerve monitoring to maximize surgical accuracy and safety.

1.3.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera.

What are the current experimental challenges?

- 1.4. **Bowen Yang:** The main challenges are the size limitation for benign tumors and the steep learning curve required to master the intricate endoscopic dissection techniques.

1.4.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera.

Ethics Title Card

This research has been approved by the human research ethics committee of West China Hospital of Stomatology, Sichuan University

Protocol

2. Tumor Exposure and Resection

Demonstrator: Bing Yan

- 2.1. Begin by planning the surgical access incision in the right lateral retromolar region, ensuring avoidance of the parotid duct and neurovascular bundles, and mark the site with methylene blue [1].

2.1.1. LAB MEDIA: 68672-2.mp4-h265: 00:07-00:10

- 2.2. Make a 5-centimeter longitudinal incision in the non-functional zone of the right buccal mucosa, positioned anterior to the pterygomandibular ligament [1]. Using a scalpel, incise through the mucosa and submucosal layers to expose the buccinator muscle [2].

2.2.1. LAB MEDIA: 68672-1.mp4-h265: 00:31-00:41

2.2.2. LAB MEDIA: 68672-1.mp4-h265: 01:46-01:53. 03:10-03:20

- 2.3. Divide the buccinator muscle to expose the buccal fat pad. Then, retract the buccinator muscle laterally [1].

2.3.1. LAB MEDIA: 68672-1.mp4-h265: 04:40-05:20

- 2.4. Now, perform meticulous dissection of the buccal fat pad and resect part of the buccal fat pad to expose the anterior borders of the right masseter and medial pterygoid muscles [1].

2.4.1. LAB MEDIA: 68672-1.mp4-h265: 09:10-09:18, 10:11-10:18, 11:30-11:52

- 2.5. Use the plasma ablation device to incise the attachments of the masseter and medial pterygoid muscles at the anterior margin of the mandibular ramus to expose the ramus [1].

2.5.1. LAB MEDIA: 68672-1.mp4-h265: 16:52-17:02, 18:30-18:40, 20:20-20:40

- 2.6. Then, dissect medially along the anterior surface of the mandibular ramus into the pterygomandibular space [1]. Carefully dissect around the lingual nerve, ensuring its preservation. Continue tracing the lingual nerve along the medial aspect of the mandibular ramus [2].

2.6.1. LAB MEDIA: 68672-1.mp4-h265: 22:10-22:16, 22:47-23:00,

2.6.2. LAB MEDIA: 68672-1.mp4-h265: 27:53-28:08, 29:11-29:20

2.7. Dissect the medial pterygoid muscle in a superior direction along the medial surface of the mandibular ramus. Incise the muscle to gain access to the infratemporal fossa and expose the tumor **[1]**.

2.7.1. LAB MEDIA: 68672-1.mp4-h265: 32:19-32:30, 35:40-36:00, 36:40-37:10, 37:24-37:30

2.8. Using the plasma ablation device, perform en bloc resection of the tumor with a 1-millimeter margin beyond the tumor capsule **[1]**.

2.8.1. LAB MEDIA: 68672-1.mp4-h265: 39:17-39:32, 49:00-50:20, 68672-2.mp4-h265:10:45-10:55

2.9. Then, irrigate the surgical cavity using an endoscope to confirm the complete removal of the tumor capsule **[1]**. Finally, pack the cavity with absorbable hemostatic gauze and place a drainage strip **[2-TXT]**.

2.9.1. LAB MEDIA: 68672-2.mp4-h265: 12:30-13:00

2.9.2. LAB MEDIA: 68672-2.mp4-h265: 23:14-23:40 **TXT: Close the incision with 3-0 sutures**

Results

3. Results

3.1. At 3 months, postoperative MRI confirmed complete resection with no residual or recurrent lesions [1]. Postoperative histopathological diagnosis confirmed a vascular malformation in the right skull base [2].

3.1.1. LAB MEDIA: Figure 4A-B. *Video editor; Highlight the lower left region in 4A and upper left region in 4B*

3.1.2. LAB MEDIA: Figure 3G.

3.2. At 3-month follow-up, no facial asymmetry or visible scarring was observed [1].

3.2.1. LAB MEDIA: Figure 4C and D.

Pronunciation Guide:

- ❓ **Infratemporal fossa**
 - Pronunciation link: <https://www.howtopronounce.com/infratemporal-fossa-howtopronounce.com>
 - IPA: /ˌɪnfɹəˈtɛmpərəl ˈfɒsə/
 - Phonetic: in-fruh-TEM-pur-uhl FOS-uh
- ❓ **Pterygomandibular**
 - Pronunciation link: <https://www.howtopronounce.com/pterygomandibular-howtopronounce.com>
 - IPA: /ˌtɛrɪˌɡoʊˈmænˌdɪbjələr/
 - Phonetic: ter-ih-go-MAN-di-byoo-lur
- ❓ **Buccinator**
 - (Common anatomical term)
 - IPA: /ˈbʌksɪˌneɪtər/
 - Phonetic: BUK-sih-nay-tur
- ❓ **Plasma ablation**
 - Plasma: /ˈplæzmə/, phonetic: PLAZ-muh
 - Ablation: /əˈbleɪʃən/, phonetic: uh-BLAY-shun
- ❓ **Intraoperative**
 - IPA: /ˌɪntrəˈɑːpəreɪtɪv/
 - Phonetic: in-truh-OP-er-uh-tiv
- ❓ **En bloc**
 - (French origin, used in surgical context)
 - IPA: /ɑ̃ ˈblɒk/ (American often “on block”)
 - Phonetic: on-block
- ❓ **Histopathological**
 - IPA: /ˌhɪstəˌpæθəˈlɒdʒɪkəl/
 - Phonetic: his-tuh-path-ah-LOJ-ih-kul
- ❓ **Neurovascular**
 - IPA: /ˌnʊroʊˈvæskjələr/
 - Phonetic: noo-roh-VAS-kyuh-lur
- ❓ **Infra- (prefix in “infratemporal”)**
 - IPA: /ˈɪnfɹə/
 - Phonetic: IN-fruh