



PUNCH BIOPSY FOR ORAL LESIONS: A CLINICIAN'S GUIDE

Dr. Arif Mohiddin

Assistant Professor, Oral and Maxillofacial Pathology & Microbiology & Forensic Odontology, North Bengal Dental College & Hospital.

ABSTRACT

The punch biopsy is an essential, minimally invasive diagnostic procedure in the management of oral mucosal lesions. This technique, which utilizes a circular blade to obtain a full-thickness tissue sample, is particularly valuable for evaluating potentially malignant disorders, vesiculobullous diseases, and pigmented lesions. Its key advantages include operational efficiency, consistent specimen quality with preservation of critical epithelial-connective tissue architecture, and utility in anatomically challenging areas. This article provides a comprehensive overview of the punch biopsy, detailing its indications, contraindications, required armamentarium, and a systematic step-by-step technique to maximize diagnostic yield while minimizing patient morbidity. Mastery of this procedure is fundamental for clinicians to ensure accurate histopathological diagnosis and guide subsequent patient management. Accurate diagnosis is the cornerstone of effective management for oral mucosal lesions. While clinical examination provides essential clues, histopathological analysis remains the gold standard for a definitive diagnosis (1). Among the various biopsy techniques, the punch biopsy stands out as a reliable, efficient, and versatile method for sampling a wide array of oral pathologies. This article delves into the principles, techniques, advantages, and limitations of using a punch biopsy for oral lesions.

KEYWORDS :**INTRODUCTION: Why Biopsy?**

Oral lesions present in various forms—white patches (leukoplakia), red patches (erythroplakia), ulcers, pigmented lesions, and exophytic growths. While some are benign reactive processes, others, like dysplastic changes or oral squamous cell carcinoma, have significant malignant potential. A biopsy provides critical information about tissue architecture and cellular morphology, guiding everything from reassurance to major surgical intervention (2)

**Figure:-1****What is a Punch Biopsy?**

A punch biopsy is a technique that uses a circular, sharp blade (the "punch") to remove a cylindrical core of tissue, encompassing the full thickness of the epithelium and a portion of the underlying connective tissue. The resulting specimen is ideal for histological examination as it preserves the critical interface between these layers, which is vital for diagnosing dysplastic and neoplastic conditions (3).

**Figure:- 2****Indications for Punch Biopsy****Punch Biopsies are Exceptionally Well-suited for:**

1. Focal Suspicious Lesions: Ideal for sampling small, discrete areas of leukoplakia, erythroplakia, or suspected early malignancy (4).
2. Pigmented Lesions: Effective for evaluating melanotic macules or early melanoma, ensuring a full-thickness sample (5).
3. Vesiculobullous Diseases: When pemphigus vulgaris or mucous membrane pemphigoid is suspected, a punch biopsy can be taken for both routine histology (perilesional tissue) and direct immunofluorescence (6).
4. Ulcerative Conditions: To rule out neoplasia in persistent ulcers that do not heal with conventional treatment.
5. Access-Challenged Areas: Useful for lesions on the soft palate, tonsillar pillars, and posterior buccal mucosa where using a scalpel is more cumbersome (3).

Contraindications and Considerations

- Vascular Lesions: Suspected vascular malformations or highly vascular tumors (e.g., hemangioma) should be approached with extreme caution due to hemorrhage risk (7).
- Uncooperative Patients: Difficulty with patient access or cooperation may necessitate a referral to an oral surgeon for biopsy under local or general anesthesia.
- Large or Exophytic Lesions: For larger masses, an

incisional or excisional biopsy with a scalpel is often preferred to obtain a more representative sample (1).

Armamentarium

Gathering the Correct Instruments Beforehand is Crucial for a Smooth Procedure:

1. Disposable Punch Biopsy Tool: Sizes range from 2 mm to 6 mm. A 3 mm or 4 mm punch is most common for oral lesions, providing an optimal balance between adequate sample size and minimal defect (8).
2. Local Anesthetic: Lidocaine with epinephrine (1:100,000) is standard. Epinephrine provides hemostasis but should be injected around the lesion, not directly into it, to avoid artifactual changes (9).
3. Scalpel Handle and Blade (#15 or #11): Often needed to undercut the base of the biopsy core if it remains attached.
4. Adson Forceps (with teeth): For gentle tissue handling to minimize crush artifact.
5. Iris Scissors: For sharp dissection.
6. Needle Holder and Suture: 4-0 or 5-0 absorbable suture (e.g., chromic gut) for closing the defect.
7. Specimen Container: With 10% neutral buffered formalin, correctly labeled.
8. Gauze and Hemostatic Agents: (e.g., Gelfoam, Surgicel) if needed.

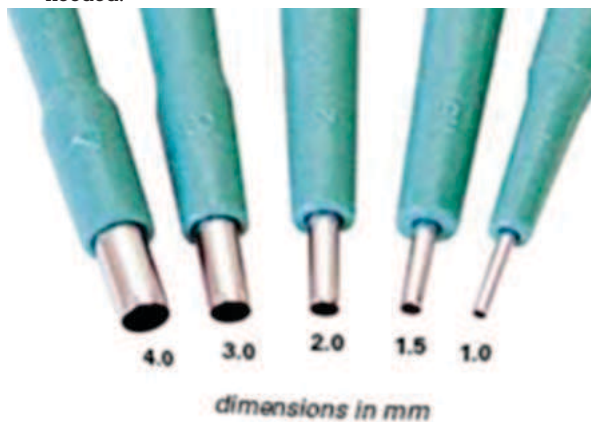


Figure:-3



Figure :-4

Step-by-Step Technique

1. Preoperative Assessment:

- Obtain informed consent, explaining the procedure, risks (bleeding, infection, scarring, numbness), and benefits.
- Review medical history, including allergies and anticoagulant medication use (biopsy is not necessarily contraindicated but requires extra caution) (10).

2. Anesthesia:

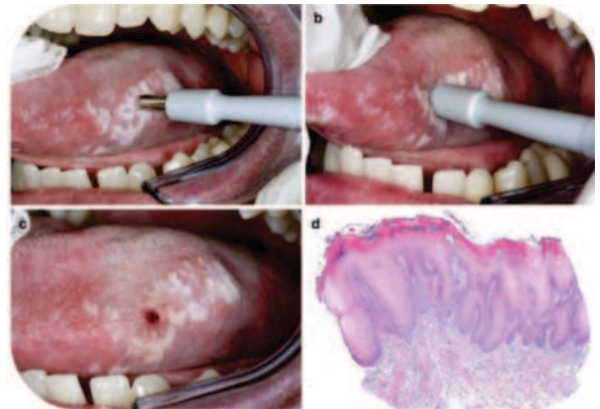
- Administer local anesthetic via infiltration around the periphery of the lesion, creating a field block. Avoid injecting directly into the lesion (9).

3. Biopsy Site Selection:

- This is the most critical step. Choose the most representative area.
- For ulcerated lesions, sample the edge of the ulcer to include both diseased and adjacent normal tissue (1).
- Avoid areas of pure necrosis or secondary infection.
- If the lesion is heterogeneous (e.g., red and white areas), sample the most suspicious region (often the erythroplakic component) or take multiple biopsies (4).

4. The Punch:

- Stretch the mucosa taut perpendicular to the lines of tension with your fingers or a helper.
- Place the punch perpendicular to the mucosal surface.
- Apply firm, gentle pressure and rotate the punch back and forth in a clockwise/counter-clockwise motion until it sinks through the submucosa and you feel a "give."
- Remove the punch (3).



punch biopsy procedure



Figure:- 5

5. Retrieving the Specimen:

- The core may often remain attached at its deep base.
- Do not grasp the core itself with forceps, as this causes crush artifact.
- Gently lift the edge of the core with a sharp needle or the tips of the forceps.
- Use iris scissors or a scalpel to sharply dissect and free the base of the specimen (8).

6. Handling the Specimen:

- Immediately place the specimen in formalin.
- If necessary, you can gently place it on a small piece of

paper before immersion to prevent curling and aid in correct orientation for the pathologist (1).

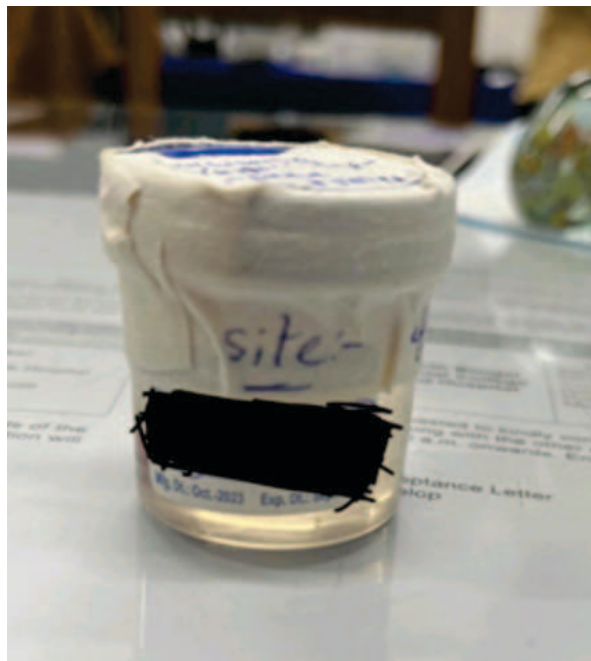


Figure:- 6

7. Hemostasis and Closure:

- Apply direct pressure with gauze.
- Most 3-4 mm punches will heal by secondary intention without issue. However, suturing is generally recommended:
- It provides immediate hemostasis.
- It reduces postoperative pain and healing time.
- It is more comfortable for the patient.
- A single simple interrupted suture is usually sufficient (7).

8. Postoperative Instructions:

- Advise the patient to avoid disturbing the area, eat a soft diet, and avoid hot fluids for the rest of the day.
- Recommend gentle rinsing with warm salt water after 24 hours.
- Prescribe analgesics if necessary.
- Arrange follow-up to review histopathology results (2).

Advantages Over Other Techniques

- Efficiency: Faster than a scalpel biopsy in many situations.
- Consistency: Provides a uniform, full-thickness specimen (3).
- Ease of Use: Particularly advantageous in difficult-to-access areas.
- Minimal Artifact: Less manipulation of the specimen compared to some scalpel techniques (8).
- Cosmetic: Often results in a very neat, circular defect that is easy to close and heals well.

Potential Limitations

- Size Constraint: The sample size is limited by the punch diameter. A 4 mm punch may be insufficient for certain connective tissue diseases where a larger sample is needed (6).
- Depth Control: In very fibrous or mobile tissues, there is a risk of obtaining a superficial sample that does not include sufficient submucosa (3).
- Fragility: The small, cylindrical specimen can be more difficult to handle without causing artifact if not careful (8).

CONCLUSION

The punch biopsy is an invaluable tool in the armamentarium of every clinician managing oral disease. Its simplicity,

reliability, and ability to yield high-quality diagnostic material make it a first-line choice for sampling many common oral lesions. Mastering this technique—particularly the critical steps of site selection, gentle tissue handling, and secure closure—ensures accurate diagnosis and optimal patient care, ultimately forming a critical link in the chain of oral cancer detection and management.

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