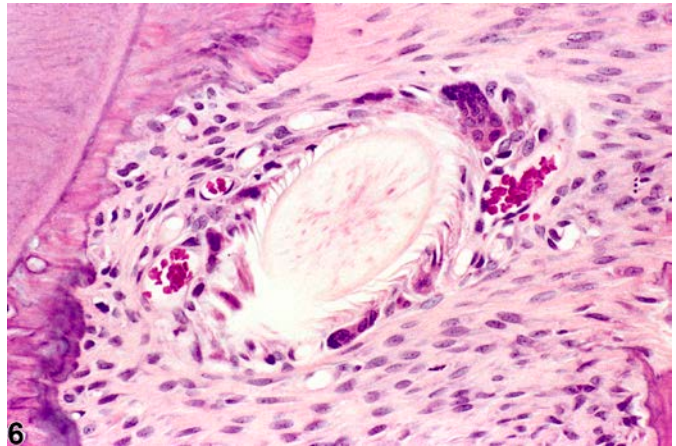
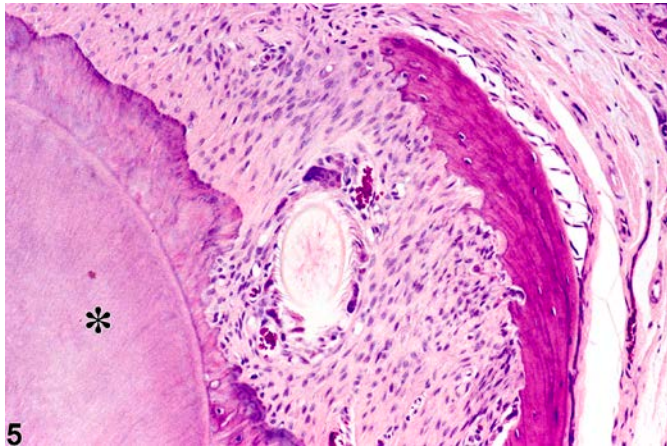
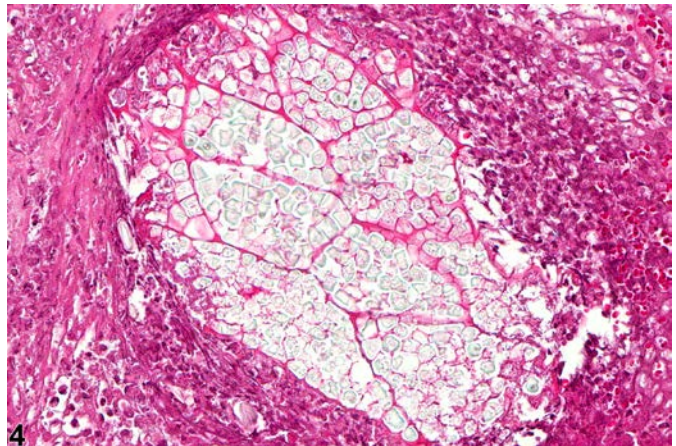
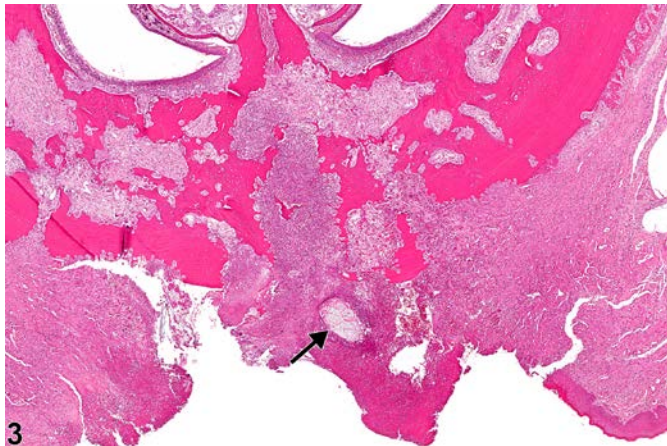
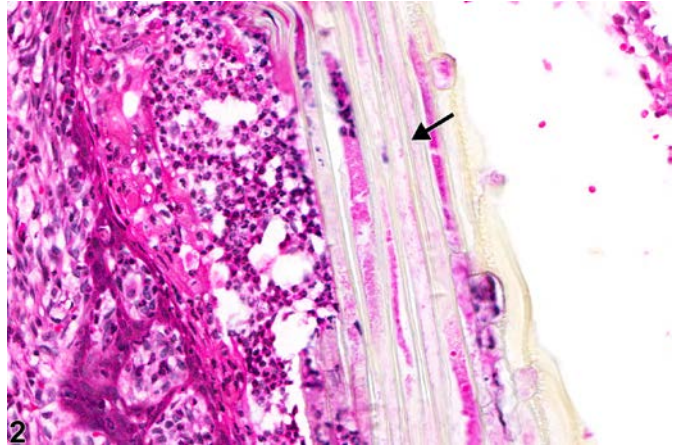
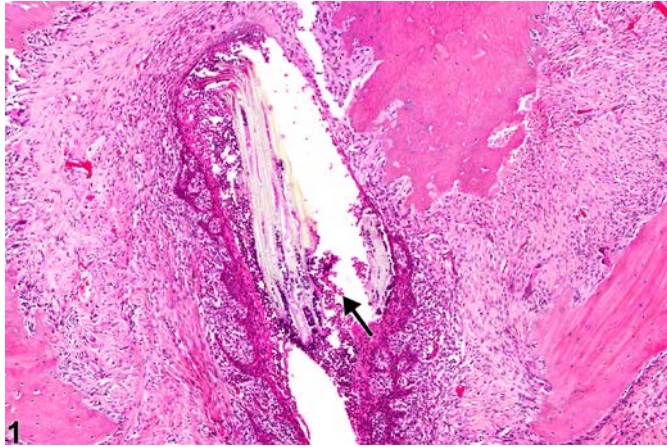




# NTP Nonneoplastic Lesion Atlas

## Oral Mucosa – Foreign Body

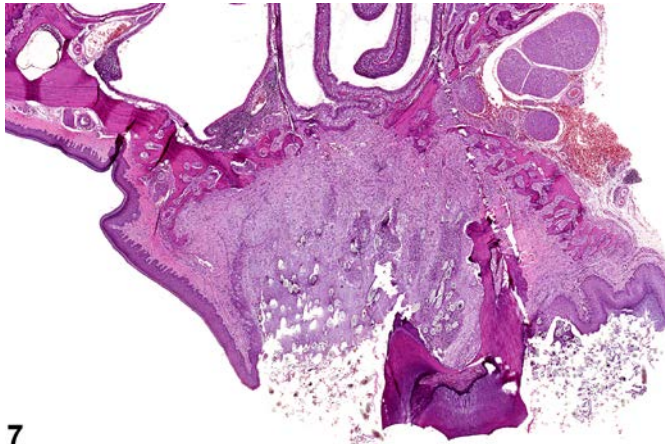




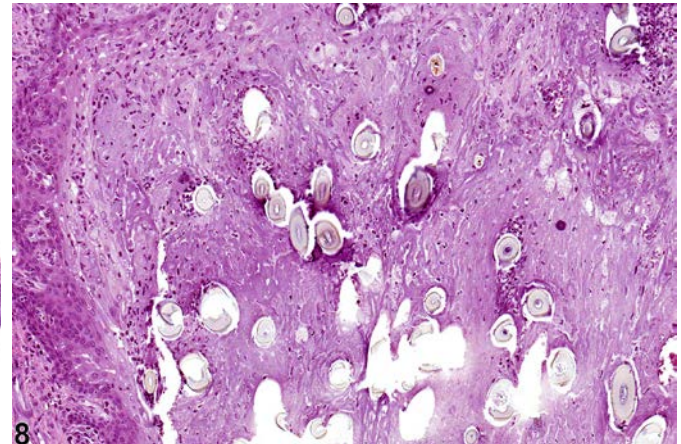


# NTP Nonneoplastic Lesion Atlas

## Oral Mucosa – Foreign Body



7



8

**Figure Legend:** **Figure 1** Oral mucosa - Foreign body in a male F344/N rat from a chronic study. The foreign body (arrow) is surrounded by suppurative inflammation. **Figure 2** Oral mucosa - Foreign body in a male F344/N rat from a chronic study (higher magnification of Figure 1). The foreign body (arrow) appears to be plant material. **Figure 3** Oral mucosa - Foreign body in a male F344/N rat from a chronic study. A foreign body (arrow) associated with an ulcer in the hard palate. **Figure 4** Oral mucosa - Foreign body in a male F344/N rat from a chronic study (higher magnification of Figure 3). The foreign body is surrounded by suppurative inflammation. **Figure 5** Oral mucosa - Foreign body in a female F344/N rat from a chronic study. There is a foreign body adjacent to a tooth (asterisk). **Figure 6** Oral mucosa – Foreign body in a female F344/N rat from a chronic study (higher magnification of Figure 5). The foreign body appears to be a hair shaft. **Figure 7** Oral mucosa - Foreign body in a male B6C3F1 mouse from a chronic study. Multiple hair shafts and associated inflammation are present in the periodontal tissue. **Figure 8** Oral mucosa - Foreign body in a male B6C3F1 mouse from a chronic study (higher magnification of Figure 7). Multiple hair shafts and associated inflammation are present in the periodontal tissue.

**Comment:** Foreign bodies are most frequently plant material from the bedding or feed (Figure 1, Figure 2, Figure 3, and Figure 4) or hair shafts (Figure 5, Figure 6, Figure 7, and Figure 8). Foreign bodies can be primary or secondary. Inflammation with ulceration can result from trauma, infection, or toxic chemicals and can result in foreign material secondarily penetrating the deeper tissues of the oral cavity. Depending on the type of foreign material present and the duration, any type of inflammation can be seen around a foreign body, but suppurative inflammation is the most common. The type of diet



# NTP Nonneoplastic Lesion Atlas

## Oral Mucosa – Foreign Body

and its consistency can influence the frequency and types of oral cavity lesions observed. Periodontitis and fistulas can occur following the feeding of powdered diets that contain food fibers. Localized granulomatous inflammation with fibrosis can be present around the affected tooth. A periodontal pocket may form at the dental sulcus and is often the route of passage for foreign material and inflammatory exudates. Chronic irritation and inflammation induced by foreign bodies in the epithelium of the mouth, pharynx, and nose can lead to formation of squamous cell carcinoma.

**Recommendation:** A foreign body should be diagnosed but not graded. If inflammation is present and is a significant component of the lesion, it should be diagnosed and graded separately, with the grading based on the density and extent of inflammatory cell infiltration. If foreign material is confined to a periodontal pocket and has not penetrated into the tissue, then foreign body is not diagnosed and the lesion is recorded as “tooth - periodontal pocket” (see appropriate document).

### References:

Bertram TA, Markovits JE, Juliana MM. 1996. Non-proliferative lesions of the alimentary canal in rats GI-1. In: Guides for Toxicologic Pathology. STP/ARP/AFIP, Washington, DC, 1-16.

Full-Text: <https://www.toxpath.org/ssdnc/GINonproliferativeRat.pdf>

Brown HR, Hardisty JF. 1990. Oral cavity, esophagus and stomach. In: Pathology of the Fischer Rat (Boorman GA, Montgomery CA, MacKenzie WF, eds). Academic Press, San Diego, CA, 9-30.

Abstract: <http://www.ncbi.nlm.nih.gov/nlmcatalog/9002563>

Madsen C. 1989. Squamous-cell carcinoma and oral, pharyngeal and nasal lesions caused by foreign bodies in feed. Cases from a long-term study in rats. Lab Anim 23:241-247.

Abstract: <http://www.ncbi.nlm.nih.gov/pubmed/2668638>

### Authors:

Linda H. Kooistra, DVM, PhD, DACVP

Pathologist

Charles River Laboratories, Inc.

Research Triangle Park, NC

Abraham Nyska, DVM, Diplomate ECVF, Fellow IATP

Expert in Toxicologic Pathology

Visiting Full Professor of Pathology

Sackler School of Medicine, Tel Aviv University

Timrat Israel