

*A Painted Turtle (Chrysemys picta) with Ulcers in the
Stomach and Duodenum*

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ULCERS OF the gastrointestinal tract have not been previously reported from any species of cold-blooded vertebrate, although the gross and microscopic morphology of ulcers as pathological lesions in humans is well known.

Ulcerative stomatitis, commonly called "mouth rot," has been described from several species of snakes held in captivity (Burtscher, 1932; Book, 1945; Klauber, 1956; Page, 1961, 1962). This disease manifests itself as ulcerative lesions in or around the oral cavity, and is apparently due to an aeromonad bacterium (Page, 1961). Bacteria have also been isolated from the ulcerated skin lesions of fish, frogs, lizards, and toads (Fish, 1934; Wolf, 1939, 1941; Reed and Toner, 1941, 1942; Wagner and Perkins, 1952; Davis, 1956; Page, 1961, 1962; Snieszko and Bullock, 1962; Meyer, 1964; and others) and from ulcerations of the oral cavities of fish (Wolf, 1939, 1941; Davis, 1956: 256).

During the examination of a painted turtle (*Chrysemys picta*) for gastrointestinal parasites, two ulcers (6 mm and 7 mm in diameter) were observed in the pyloric portion of the stomach and one smaller ulcer (2 mm in diameter) was observed in the duodenum. The gross appearance of the smaller ulcer was similar to lesions of this type found in humans (Robbins, 1962: 79-80). There was no discoloration of the ulcer or the surrounding area. The two larger ulcers in the stomach were black, had a smooth, glassy appearance, and, since they did not have an excavated appearance, were not recognizable as ulcers upon gross examination.

The ulcerated areas, with a surrounding portion of normal tissue, were removed and placed in Bouins fixative, along with the liver, lungs, and spleen. These tissues and organs were dehydrated by standard methods, embedded

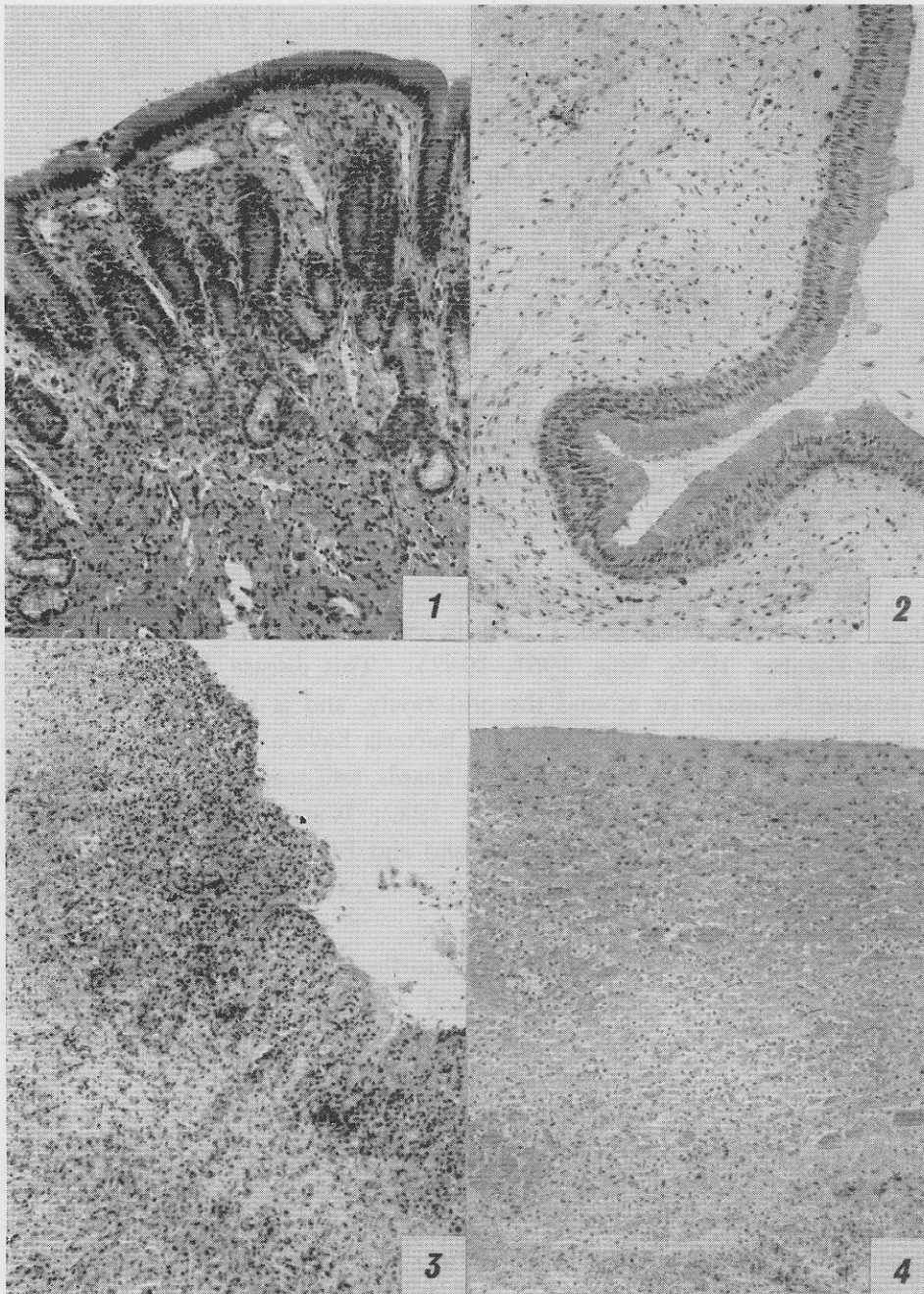


Figure 1. Normal intestinal epithelium 205 X. Figure 2. Normal stomach epithelium 205 X. Figure 3. Intestinal ulcer. Note heavy infiltration of eosinophilic leucocytes (black dots), especially near the surface 205 X. Figure 4. Stomach ulcer. Note smooth surface of compacted collagen 205 X.

in Paraplast, sectioned at 7 microns, and stained with Erlich's hematoxylin and eosin, Masson's trichrome, and Mallory's triple stain.

The two stomach ulcerations had the same histological appearance (Figure 4), with both penetrating into the *tunica muscularis*. They were laminated and had a smooth surface composed of compacted collagen that was hyaline in appearance. Under the collagen was a highly vascularized layer of fibrous tissue containing many eosinophilic leucocytes. This was underlaid by a layer of necrotic neutrophilic leucocytes with pycnotic nuclei. Another very thick layer of eosinophils formed the base of the ulcers. The entire ulcerated area and the surrounding normal tissue were heavily infiltrated with eosinophils. These lesions were heavily infiltrated by collagen and fibrous tissue and were highly vascularized, indicating an advanced stage of wound repair. Since they lacked an excavated appearance, these lesions were thought to be chronic ulcerations. However, there was no suggestion of epithelial regeneration over the ulcerated stomach areas.

The histological appearance of the duodenal ulcer was quite different from those found in the stomach. It had almost completely penetrated the *tunica submucosa*, but had not eroded into the *tunica muscularis*. The upper part of the lesion was an open pit lined by a thick layer of eosinophilic leucocytes (Figure 3). This ulcer also lacked any sign of epithelial regeneration. The lower portion of it was highly vascularized and infiltrated by collagen and fibrous tissue, indicating that wound repair was proceeding. This ulceration showed signs of acute inflammation with large numbers of neutrophilic leucocytes present in the tissue adjacent to it. There were also many eosinophilic leucocytes present in this lesion and the surrounding tissue. However, there were not as many eosinophils present in the intestinal ulcer as were present in the stomach ulcerations. Fish (1934), in his microscopic discussion of the external ulcers found on trout, noted that the infected area was infiltrated by polymorphonuclear leucocytes and that a mononuclear infiltrate was present within healing tissue. However, these lesions in the turtle apparently lacked the monocytes present in the fish ulcerations.

All three of these ulcers exhibited a marked fibroblastic proliferation, scarring, heavy vascularization, and the accumulation of numerous eosinophils and neutrophils. The cause of these ulcerations is unknown, but it is possible that they may be due to a bacterium, since aeromonad bacteria are usually recovered in association with diseased tissues of cold-blooded vertebrates (Page, 1961).

It was noted that the spleen contained an abnormal increase in the number of eosinophilic leucocytes. The liver and the lungs were normal.

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