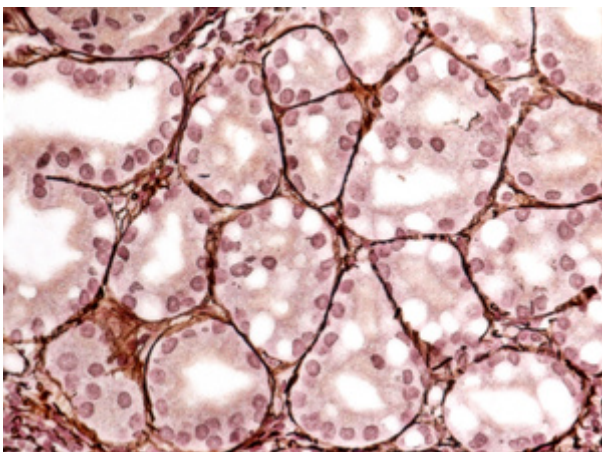
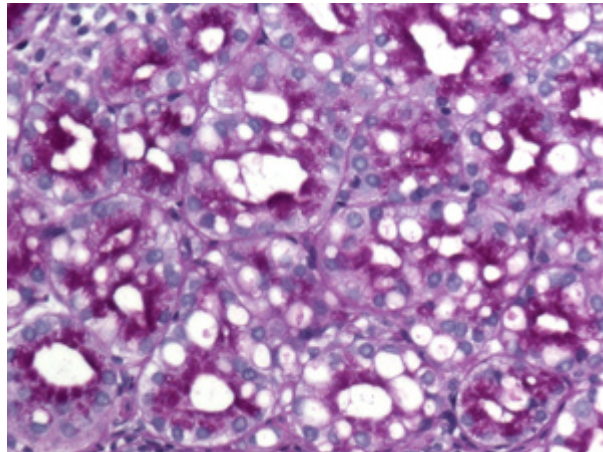
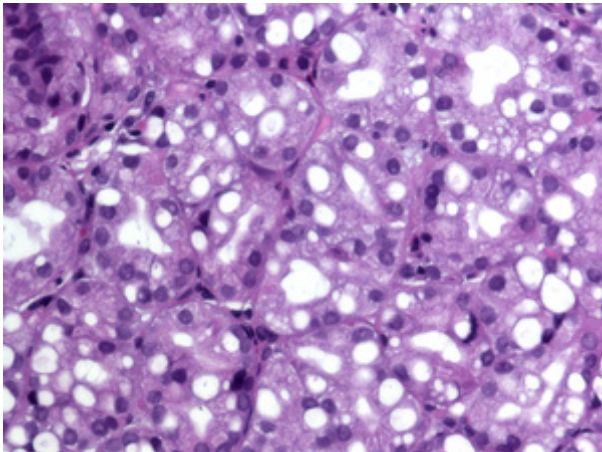
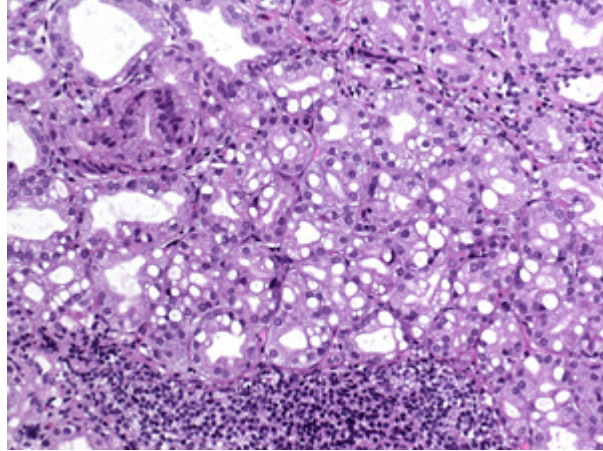
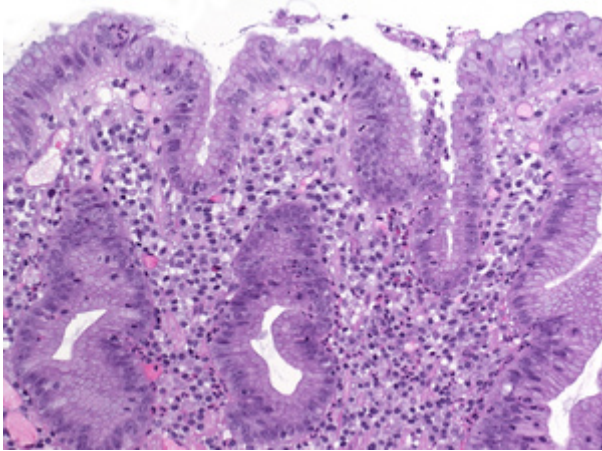


May 2014

Biopsy material from the stomach of a 60-year-old female with endoscopic diagnosis of gastritis.

What is your diagnosis?



Diagnosis

Pseudo-signet ring cells (in *Helicobacter* gastritis).

Comment

Chronic-active inflammation of the gastric mucosa due to *Helicobacter* infection is seen in Panel A. Panels B and C show the antrum mucosa (in different magnifications): The cells of the mucus glands are characterized by eccentric bland nuclei and cytoplasmic vacuoles that have a clear or glassy appearance. These elements

are negative on PAS-stain, apart from an apical rim of cytoplasmic positivity (Panel D). The unusual glands are well circumscribed, retaining the configuration and architecture of adjacent entirely normal glands, and reticulin fibres are well preserved around them (Panel E). The cells are negative for neuroendocrine markers and show strong membranous expression of E-cadherin, ultimately qualifying them as “pseudo-signet ring cells”.

Carlos Rubio described pseudo-signet ring cells (or “glassy cells”) for the first time more than 25 years ago, in 1986. These cells are easily recognizable in haematoxylin-eosin stained sections, they are negative for mucin stains (PAS and PAS-diastase), but positive for E-cadherin. Usually the pseudo-signet ring cells display either a glandular arrangement or appear as cohesive clusters; the latter pattern could be misinterpreted as true signet ring cells, i.e. cells of a signet-ring cell carcinoma, particularly the in situ component described in hereditary diffuse gastric cancer. The above mentioned morphological features may be used to aid the diagnosis in difficult cases.

The pathogenesis of pseudo-signet ring cells is largely unclear; they may arise in an inflammatory background, as in our case, or in a non-inflammatory background. They are usually believed to represent a degenerative change of the gastric mucosa, probably related to environmental factors, such as food habits, and they are often but not invariably located in the antrum. It is of note that benign epithelial cells in the stomach with signet ring cells appearance have also been reported in ischemia and ulceration.

For further reading

- › Rubio C, Kato Y, Kitagawa T, Sugano H. A pitfall in the interpretation of intestinal metaplasia of the stomach. *Acta Pathol Microbiol Immunol Scand A*. 1986;94:165-6.
- › Rubio CA. My approach to reporting a gastric biopsy. *J Clin Pathol*. 2007;60:160-6.
- › Hughes C, Greywoode G, Chetty R. Gastric pseudo-signet ring cells: a potential diagnostic pitfall. *Virchows Arch*. 2011;459:347-9.

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