Metaplastic oxyntic mucosa in autoimmune gastritis:
a complex lesion without apparent precancerous features of intestinal type

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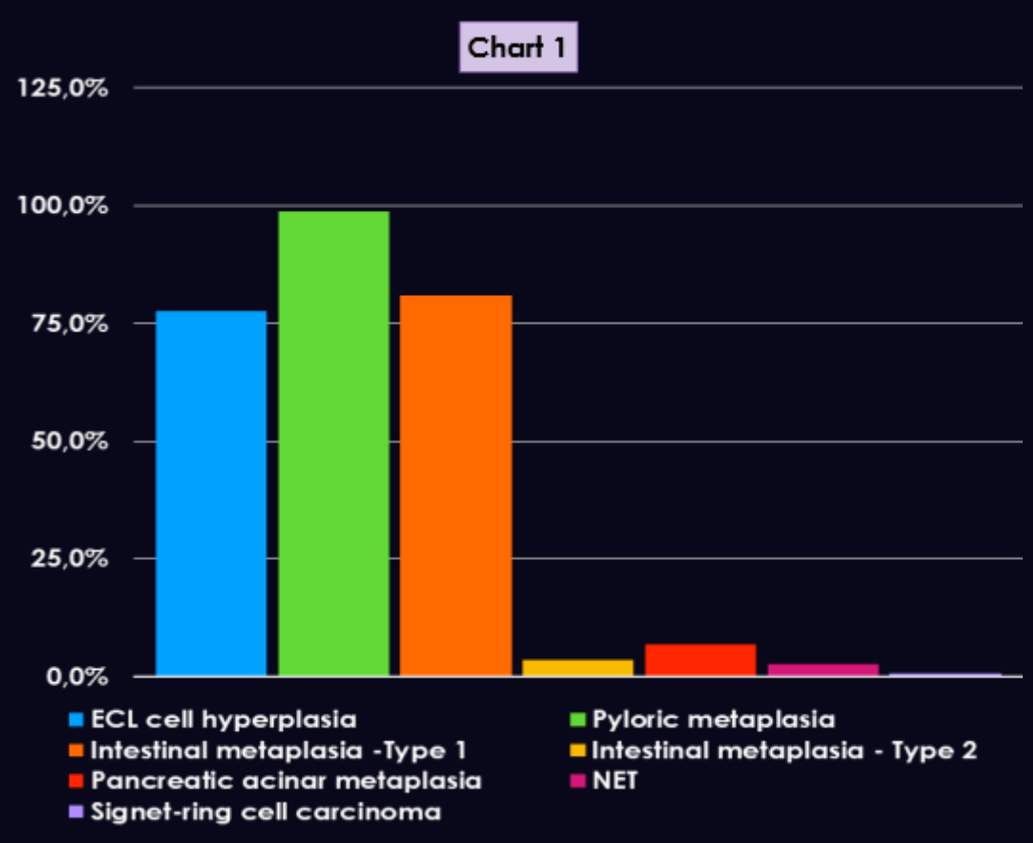
Background & objectives

Metaplastic changes of oxyntic mucosa in autoimmune gastritis (AIG) are still a matter of investigation. Our study aims to explore subtypes of pyloric and intestinal metaplastic epithelium and gain further insight into their cellular origin and prognostic value.



Results

Pyloric-type metaplasia was seen in 98.6% (145/147) and intestinal metaplasia (IM) in 81.6% (120/147) of the cases. IM was complete (type I) in 99.1% (119/120) and incomplete (type II) in 4.16% (5/120) of the cases. No changes of epithelial dysplasia were noted while in one case a signet-ring cell carcinoma was diagnosed *(Chart 1)*. MUC5AC-positive cells prevailed over MUC6-positive cells. Biphenotypic gastric mucous cells co-expressing MUC5AC-CDX2 and MUC6-CDX2 were detected in all cases examined, indicating mucous-to-intestinal cell transdifferentiation *(Fig 1,2)*. The percentage of MUC5AC-positive cells co-expressing CDX2 ranged from 0.3% to 17.3% (mean 7.65%), while the percentage of MUC6-positive cells co-expressing CDX2 ranged from 0.13% to 3.9% (mean 2.20%)*(Chart 2)*. Metaplastic intestinal cells showed markedly high Ki67 expression (49.6%) followed by metaplastic mucous cells (8.8%) *(Fig 3)*.

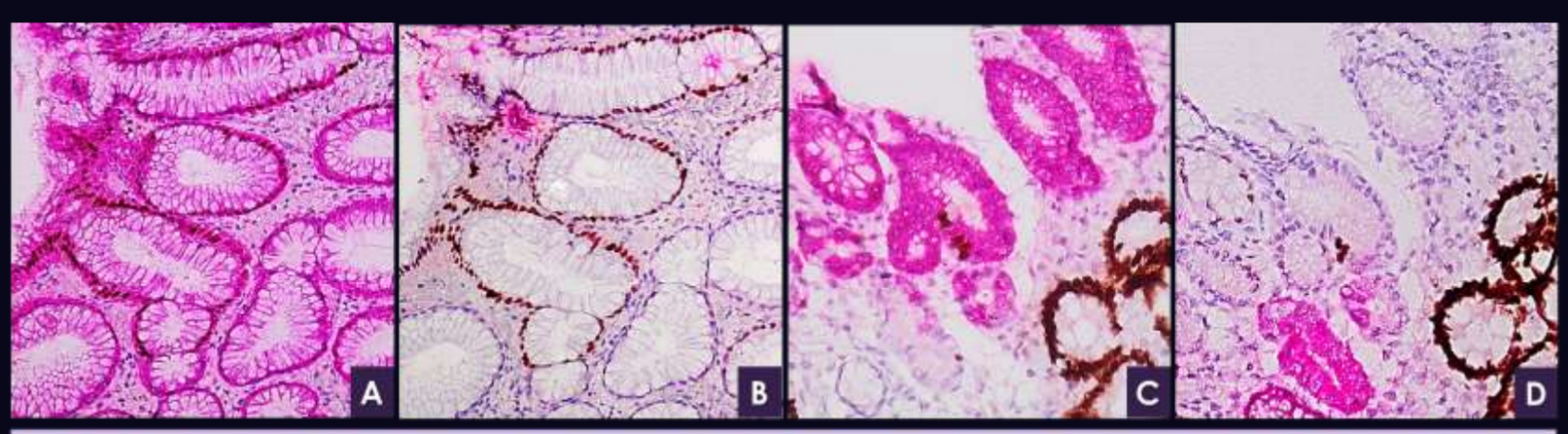


Figure 1. Same histologic areas (**A-B** and **C-D**) stained with MUC5AC-CDX2 (**A,C**) and MUC6-CDX2 (**B,D**) double staining, showing biphenotypic cells co-expressing MUC5AC and CDX2 (**A,C**) while being negative for MUC6 (**B,D**). (MUC6,MUC5AC: cytoplasmic staining-magenta color; CDX2: nuclear staining-brown color)

Methods

147 gastric biopsies showing histopathological changes of AIG, negative for H. pylori infection, were examined retrospectively regarding the presence and type of metaplasia. Immunohistochemistry for chromogranin and Ki67 was performed and 3 double immunostaining assays for MUC5AC-CDX2, MUC6-CDX2 and MUC6-Ki67 were applied in 15 cases.

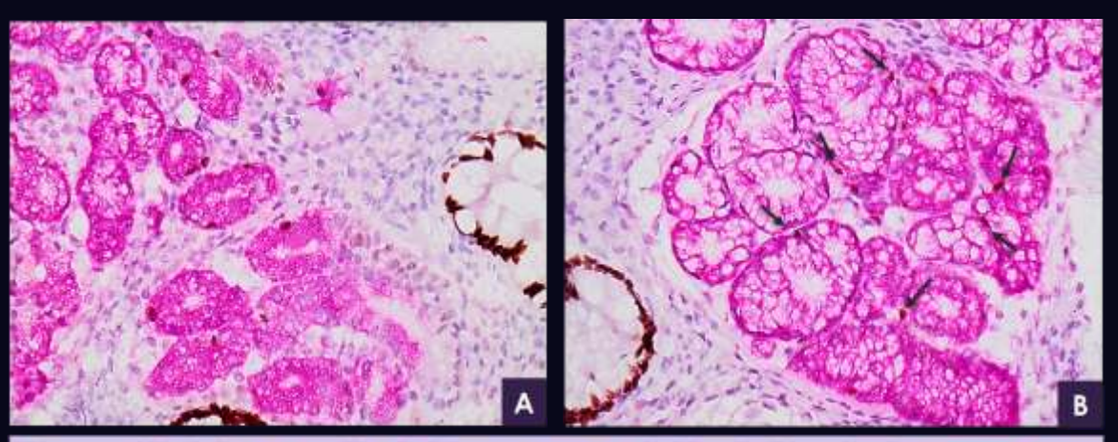


Figure 2. Histologic areas stained with MUC6-CDX2 double staining, showing biphenotypic cells co-expressing MUC6 and CDX2 (arrows).
(MUC6: cytoplasmic staining-magenta color; CDX2: nuclear staining-brown color)

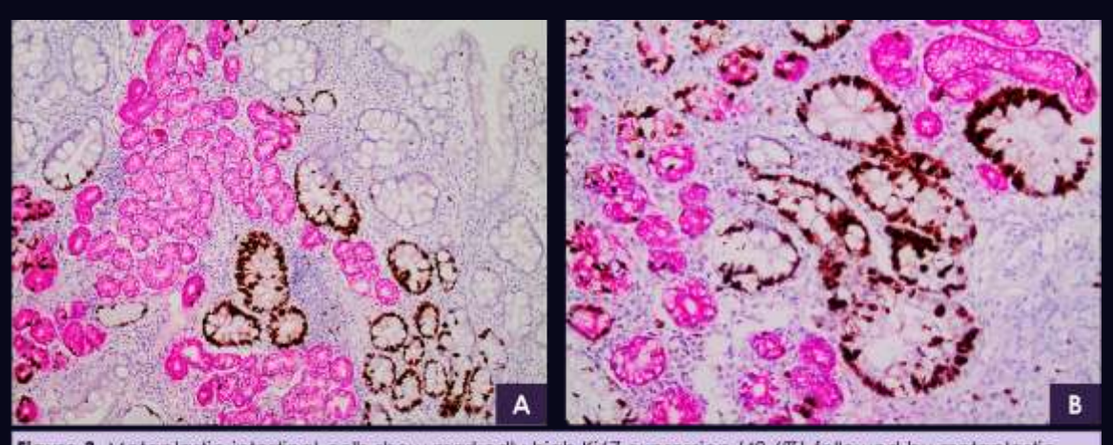


Figure 3. Metaplastic intestinal cells show markedly high Ki67 expression (49.6%) followed by metaplastic MUC6-positive mucous cells (8.8%).
(MUC6: cytoplasmic staining-magenta color, KI67: nuclear staining-brown color)

Conclusion

In AIG, transdifferentiation of MUC5AC- and to a lesser extent of MUC6-expressing metaplastic cells plays a contributory role in the generation of IM, which is almost exclusively complete. The absence of epithelial dysplasia and the presence of complete IM seems to deprive the proliferative metaplastic mucosa of a potential precancerous nature, suggesting a non-carcinogenic impact of the autoimmune inflammatory microenvironment.

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