

## Gastric polypoid lesions. Our experience

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SUMMARY: Gastric polypoid lesions. Our experience.

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**Background and aim.** *The Authors report the results of their experience on polypoid lesions of the stomach and on endoscopic polypectomies.*

**Patients and methods.** *A study on 2000 OGD (oesophagogastroduodenoscopy) has been carried out on 95 patients with polypoid lesions. The authors have analysed the associations existing between histological type and symptomatology and localisation of the lesion and the status of the Helicobacter pylori and the risk of cancerization. The data were confronted with the ones already available.*

**Results.** *In the majority of the cases, the polypoid lesions were asymptomatic, the localization changed according to the histologic type, with the antrum as the most affected area. The presence of Helicobacter pylori does not seem to be correlated to the lesion, except in the case of hyperplastic polyps. The percentage of risks of cancerization increased in case of adenomatous polyps. In one patient signet ring cell carcinoma within a gastric polyp was found. Gastric signet ring cell carcinomas are peculiar for their rarity as well as for the growth in polypoid lesions.*

**Conclusion.** *We confirm the higher frequency of hyperplastic polyps and the correlation between histological type and localization. Endoscopic polypectomy is the first approach in gastric polyps, with lower risk of developing cancer. Only in selected cases, as in one in ours, it is advisable the surgery.*

RIASSUNTO: Lesioni gastriche polipoidi. Nostra esperienza.

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**Premessa e scopi.** *Gli Autori riportano i risultati della loro esperienza sulle lesioni polipoidi e sulle polipectomie endoscopiche.*

**Pazienti e metodi.** *Su 2000 esofagogastroscopie (EGDS) si sono selezionati 95 pazienti con lesioni polipoidi. Gli autori hanno analizzato l'associazione esistente tra tipo istologico e sintomatologia, localizzazione, presenza di Helicobacter pylori (HP) e rischio di cancerizzazione.*

**Risultati.** *Nella maggior parte dei casi le lesioni polipoidi erano asintomatiche; si è inoltre osservato che la localizzazione dei polipi cambia a seconda del tipo istologico e che l'antrum è l'area più colpita. La presenza di HP non sembra essere correlata con la lesione, eccetto che nei casi di polipi iperplastici. La percentuale di rischio di cancerizzazione è aumentata nel caso di polipi adenomatosi. In un caso è stato evidenziato carcinoma a cellule a castone in un polipo gastrico. Il carcinoma con cellule a castone è un'evenienza rara ed è raro inoltre trovarlo in una lesione polipoidi.*

**Conclusioni.** *Confermiamo l'alta frequenza di polipi iperplastici e abbiamo verificato inoltre l'associazione tra varietà istologica e localizzazione. La polipectomia resta il primo approccio per le lesioni polipoidi; solo in alcuni casi selezionati, tra cui il nostro caso con carcinoma, è da preferire la chirurgia.*

KEY WORDS: Gastric polyps - Signet ring cell carcinoma - Endoscopy - Polypectomy.  
Polipi gastrici - Carcinoma a cellule con castone - Endoscopia - Polipectomia.

## Introduction

Diagnostic endoscopy has drawn attention to the increase of gastric polyps (1, 2).

The term "polypoid lesion" refers to every formation protruding in the lumen of stomach (3), whilst the term "polyp" refers to the epithelial proliferating lesion of the gastrointestinal mucosa, further to histological confirmation (4).

According to Oberhuber and Stolte classification (5), polyps are categorised into the following five groups: A-

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non neoplastic polyps, including the hyperplastic polyps; B- hamartomatous polyps; C- heterotopic polyps; D- neoplastic polyps; E- reactive polypoid lesions.

According to international records, the most common polyps are the hyperplastic ones.

## Patients and methods

This prospective study has been carried out at the Department of Surgical and Oncological Sciences of the University of Palermo. It has been based on 2000 oesophagogastrroduodenoscopy (OGD) performed from 2001 to 2003.

Each gastroscopy has been performed in patient on their left side, to whom we have administered an intravascular dose of midazolam and lose anesthetised (spray) in pharyngeal mucosa. In accordance with others Authors (5) who agree to consider the gastro-oesophageal joint as an integral part of the stomach, the polyps located in this site have also been included in the study.

Patients affected by multiple polyps and/or gastric polyps > 5 mm have been suggested to undergo an OGD with polypectomy in day surgery.

In polyps ranging from 5 mm to 3 cm, polypectomy have been performed with a diathermic loop, before infiltrating the sub-mucosa with an adrenalin solution (dilution 1/10.000); conversely, biopsical forceps were used to remove polyps < 5 mm.

Biopsies of both the angulus and the antrum have been performed on each patient undergoing polypectomy in order to detect the *Helicobacter pylori* (HP). In addition, we have also carried out a biopsy of the mucosa surrounding the polypoid lesion, followed by second biopsy for complete and accurate histopathological evaluation.

Each patient underwent a thorough follow-up one year after the endoscopic removal of the lesion.

In one case the histology in sections coloured with haematoxylin-eosin, showed the presence of a gastric polypoid signet ring cell carcinoma (1), confirmed by the biopsies on the polyp basis.

An histochemical exam, using Alcian PAS, as well as an immunohistochemical exam, using antibodies for the citocheratines AE1/AE, Cam 5.2 and with antibodies Mib1 (Ki67), were carried out on the sections, in order to evaluate the neoplasia cellular growth fraction. This patient underwent total Roux gastrectomy and first level lymphadenectomy according to negative results of CT scan.

### Statistical analysis

In this study we have taken in consideration and correlated the following variables: symptomatology (A), histological type, results of HP test (C) and the localization (B) of polypoid lesion. To measure association of two-way contingency tables they have been used: Pearson's chi-squared test ( $\chi^2$ ), the likelihood ratio test ( $G^2$ ) with p-value 0.05 and 0.01 and the Cohen-Friendly association plot. Since in the contingency tables they are present "sampling zeros", the p-value have been calculated by Monte Carlo simulations with 10,000 replicates.

The three-way contingency table has been analyzed with a log-linear model. The choice of the model has been made according to lowest likelihood ratio test ( $G^2$ ) and AIC (Akaike's Information Criterion).

## Results

Among 2000 patients who underwent OGD, in 95 were found gastric polypoid lesion (4.75%). The patients'

age ranged between 28 and 85 years with median of 58 years.

In total 163 polyps were individuated (8.15%), with a polyp-patient rate of 1.71, prevailing incidence in the female population (55 cases, 58%) versus (40 cases, 42%), whit a female/male ratio of 1.41.

The gastric polyps were associated to a wide range of symptoms, which has enabled us to identify the following clinical syndromes: 56 cases of dyspeptic syndrome (58.95%), 30 cases of algic syndrome with pain not related to meals (31.58%), 7 cases of anaemic syndrome (7.38%) without any dyspeptic symptoms, 1 (1.05%) case of haemorrhagic syndrome (haematemesis). In one case (1.05%) the are symptoms of intestinal obstruction due a typical of sessile polyps > 3.5 cm.

Antrum is the mostly affected site of polypoid lesions (38.95%), followed by cardias (27.37%), corpus (22.10%) and fundus (11.58%) of the stomach. Sessile lesions reached 84.21%. Multiple lesions (actual polyposis) were mostly localised in the antrum (92%), with gap among them  $\geq$  20 mm. The size ranged between 1 and 35 mm; in 61% of cases, polyps were < 5 mm; in 27%, they ranged between 5 and 10 mm; in 11% of cases, between 10 ad 20 mm; in 1% between 20 and 35 mm.

The histological diagnosis of the 163 removed polyps was 84 hyperplastic polyps (51.53%), 18 foveolar hyperplasia (11.04%), 20 fundic gland polyps (12.27%), 7 multiform gastritis (4.30%), 14 adenomas (8.59%) and 22 other types (12.27%).

The histological evaluation of the mucosa surrounding the lesions has shown in 72% of cases the presence of chronic gastritis, which was associated to HP infection in 41% of the cases (urease-test - RUT); 97% of the polyps in cardiac region were associated with different degrees of symptomatic reflux oesophagitis.

The hypothesis of "no association" between histological subtype and location is rejected with significance level  $\alpha = 0.01$  (Tab. 1). The Cohen-Friendly association plot shows that nearly all the cells give a contribution to the association (Fig. 1).

The hypothesis of "no association" between histological type and symptomatology, symptomatology and HP test, symptomatology and location (Tab. 2) are not rejected.

Moreover, adapting a log-linear model to the histological type, location and HP test variables, we have demonstrated an association between histological type and polyp location correlated to HP test.

## Discussion

Our incidence of gastric polyps is 4,75% in 2000 OGD. The majority of small and sessile gastric polyps

TABLE 1 - FREQUENCY COUNTS (EXPECTED FREQUENCIES) OF HISTOLOGICAL TYPE AND LOCATION VARIABLES ( $\chi^2 = 175.17$ , p-value = 0;  $G^2 = 94.05$ , p-value = 0).

| Histological type                | LOCATION      |               |              |              |         | Total |
|----------------------------------|---------------|---------------|--------------|--------------|---------|-------|
|                                  | Antrum        | Cardias       | Corpus       | Fundus       | Linea Z |       |
| Hyperplastic polyp               | 48<br>(37.10) | 30<br>(21.13) | 6<br>(17.52) | 0<br>(8.25)  | -       | 84    |
| Glandular polyp                  | 0<br>(8.83)   | 0<br>(5.03)   | 4<br>(4.17)  | 16<br>(1.96) | -       | 20    |
| Foveolar hyperplasia             | 7<br>(7.95)   | 4<br>(4.53)   | 7<br>(3.75)  | 0<br>(1.76)  | -       | 18    |
| Adenoma                          | 11<br>(6.18)  | 0<br>(3.52)   | 3<br>(2.92)  | 0<br>(1.37)  | -       | 14    |
| Gastritis varioliformis          | 0<br>(3.09)   | 1<br>(1.76)   | 6<br>(1.46)  | 0<br>(0.68)  | -       | 7     |
| Other                            | 6<br>(8.83)   | 6<br>(5.03)   | 8<br>(4.17)  | 0<br>(1.96)  | -       | 20    |
| Polyp with signet cell carcinoma | 1             | -             | -            | -            | 1       | 1     |
| Total                            | 73            | 41            | 34           | 16           | 1       | 164   |

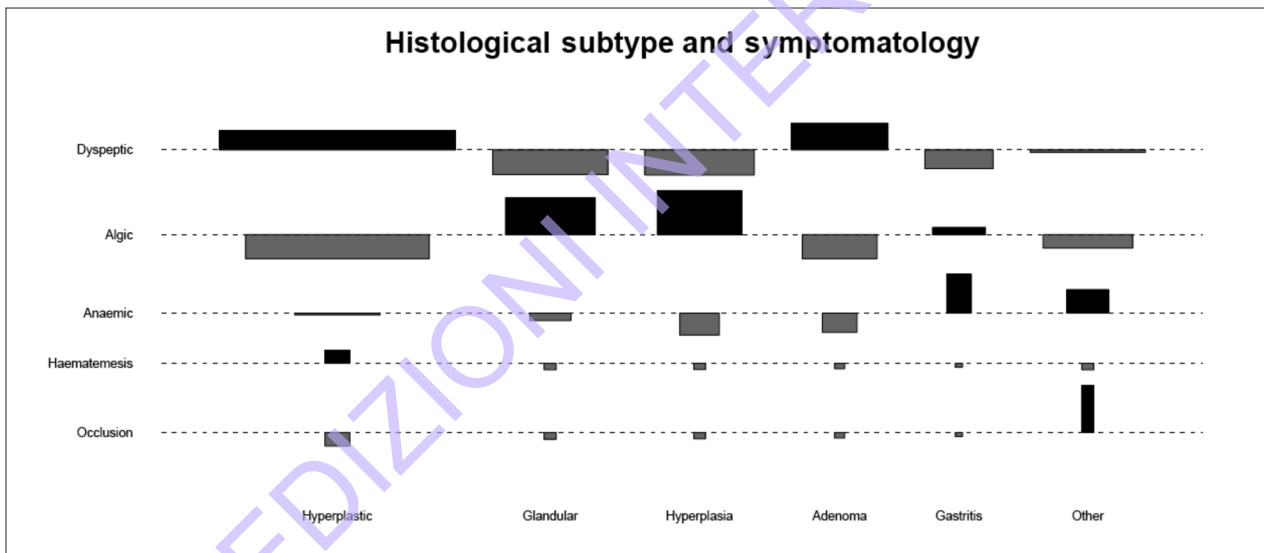


Fig. 1 - Cohen-Friendly association plot between polyp histological subtype and localization.

affected patients between 40 and 85 years old. In our opinion, the lack of symptoms of polyps, which some authors reported in 50% of cases (6), has been underestimated, as we believe that this percentage can reach up to 70%. The following five clinical syndromes were associated to the presence of polyps: algic, anaemic, haemorrhagic and occlusive syndromes.

We performed endoscopic polypectomy to treat polyps up to 5 mm. In patients with larger polyps, we performed a second treatment. As suggested by other authors (7, 8), instead of performing the biopsy on the polyps in these patients, we have preferred to carry out the definitive histological examination, in fact the biopsy has a high percentage of false negative results (9, 10).

According to several authors (5, 10-12), in our experience the most common histological types of gastric polyps are the hyperplastic and the fundic gland ones. Although this type of lesions are widely regarded as benign, recent data has shown cases of areas affected either by dysplasia or by structural elements of adenomatous type (5, 7). The observational percentage related to hyperplastic polyps ranges between 25% and 75%; these percentages are very different due to the fact that some authors also include the focal foveolar hyperplasia in the category of hyperplastic polyps (13-15). Other authors even claim that the focal foveolar hyperplasia is a lesion preceding hyperplastic polyps (5). The malignant degeneration of hyperplastic polyps swings between 0.1% and

TABLE 2 - FREQUENCY COUNTS (EXPECTED FREQUENCIES) OF SYMPTOMATOLOGY AND LOCATION VARIABLES ( $\chi^2 = 18.86$ , p-value = 0.06;  $G^2 = 17.32$ , p-value = 0.14).

| Symptomatology     | LOCATION      |               |               |             |         | Total |
|--------------------|---------------|---------------|---------------|-------------|---------|-------|
|                    | Antrum        | Cardias       | Corpus        | Fundus      | Linea Z |       |
| Dyspeptic symptoms | 28<br>(21.81) | 13<br>(14.74) | 10<br>(12.38) | 5<br>(7.07) |         | 56    |
| Algic symptoms     | 6<br>(1.68)   | 10<br>(7.89)  | 8<br>(6.63)   | 6<br>(3.79) |         | 30    |
| Anaemic syndrome   | 2<br>(2.73)   | 2<br>(1.84)   | 3<br>(1.55)   | 0<br>(0.88) |         | 7     |
| Haematemesis       | 1<br>(0.39)   | 0<br>(0.26)   | 0<br>(0.22)   | 0<br>(0.13) |         | 1     |
| Occlusion          | 0<br>(0.39)   | 0<br>(0.26)   | 0<br>(0.22)   | 1<br>(0.13) |         | 1     |
| Total              | 37            | 26            | 21            | 11          |         | 95    |

TABLE 3 - THE RESULTS OF THE LOG-LINEAR MODEL. THE BEST MODEL IS [C][AB], I.E. NAMELY THE MODEL THAT CONSIDERS THE ASSOCIATION AMONG VARIABLES SYMPTOMATOLOGY, LOCATION AND HP TEST.

|              | $G^2$ | df | p-value | AIC    |
|--------------|-------|----|---------|--------|
| [A][B][C]    | 26.39 | 31 | 0.70    | 114.83 |
| [A][BC]      | 25.10 | 28 | 0.62    | 119.53 |
| [B][AC]      | 22.46 | 27 | 0.71    | 118.90 |
| [C][AB]      | 10.66 | 19 | 0.93    | 123.10 |
| [AB][BC]     | 9.37  | 16 | 0.90    | 127.80 |
| [AB][AC]     | 6.73  | 15 | 0.96    | 127.17 |
| [AC][BC]     | 21.17 | 24 | 0.63    | 123.60 |
| [AB][BC][AC] | 5.54  | 12 | 0.94    | 131.98 |
| [ABC]        | 0     | 0  | ---     | 150.43 |

A = Symptomatology, B = Location, C = *Helicobacter pylori* test; df = degree of freedom.

8% (10-19); however, the therapeutic strategy in these cases includes polypectomy. New recent data showed that the eradication of the HP in patients with hyperplastic polyps leads to the vanishing of the polyps (20). Amongst the 85 hyperplastic polyps examined. The occurrence of a correlated HP gastritis was evident in 92% of cases, with neoplastic degeneration in two patients only.

The fundic gland polyps concern rare small lesions (2-3 mm) associated both with FAP (familial adenomatous polyposis) and with the Gardner syndrome in 53% of cases. In most cases, these latter polyps, unlike the hyperplastic ones, are associated with the presence of normal gastric mucosa, with negative HP test (5). Although some authors have identified a correlation between intensive use of PPI (protonic pump inhibitors) and occurrence of these polyps (21), we agree with Oberhuber to evaluate this relationship absolutely accidental. The conversion into dysplasia occurs in 1% of cases for the sporadic polyps, and in 25% to 45% of cases for the familial polyps (22). Very rare is carcinomatous degeneration (5).

The adenomatous polyps represent about 10% of gastric polyps and are considered pre-cancerous lesions,

with carcinoma incidence from 3.4% up to 75% (23). The chances of an adenoma evolving into adenocarcinoma are linked both to the lesion size and structure; in fact, polyps > 2 cm, with a villous or tubular-villous structure, carry a higher risk of developing a carcinomatous transformation (18). In our study, the progression of adenoma to carcinoma has been observed in 3 out of 14 cases.

Correct diagnosis can only be formulated through histological tests, due to the lack of non-invasive diagnostic procedures, such as radiological and/or laboratory tools.

## Conclusion

In addition to the finding of the higher frequency of hyperplastic polyps, our study has demonstrated that the associations, "marginal" or "conditioned", between histological type and symptomatology and between histological type and HP test are not statistically significant; moreover there is a mutual independence between histological type, symptomatology and HP test.

Instead, the association between the histological type and HP status turns out statistically significant. Polypectomy is therefore the therapeutic strategy to be adopted as first-approach surgical procedure. However, the therapeutic indications should not be considered as absolute. It is indeed advisable to modify strategies in relation to the results of the histological test (as illustrated in our case of a polyp with signet ring cell carcinoma underwent gastrectomy), as well as of the follow up

(the first after 6 months, subsequently after one year) to which all polypectomised patients should be submitted.

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