

EARLY GASTRIC CANCER

Review of 42 cases

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SUMMARY

Between 1974 and 1977, 42 cases of Early Gastric Cancer (E. G. C.) were diagnosed among 572 gastric cancers, all operated on. General incidence 7.3 %. The morphological types were as follow: 2.4 % of type I, 2.4 % of type II a, 21.4 % of type II b, 23.8 % of type II c, 50 % of type III. Three cases were multicentric. The diagnosis of malignancy previous to surgery was done in 83 %: in 28 % by endoscopy; in 36 % by biopsy and in 19 % by conventional radiology. More than 50 % have had dyspepsia for more than 5 years. Upper G. I. bleeding was found in 31.6 %.

Early Gastric Cancer (E. G. C.) is the carcinoma of the stomach limited to the mucosa and submucosa.³ In the statistics of mortality in Portugal, the Gastric Cancer is the most frequent malignant lesion, both in men and women. It accounts for 25 % of all malignant tumours and it is by itself the responsible for 3 % of all deaths.¹²

The incidence of EGC among Gastric Carcinomas has been rather steady in Europe during the last few years, around 6 %.^{6, 7} This figure is higher than the one observed in the USA, 2 %-4 %, ⁵ but much smaller then reported from Japan, 40 %.³ This means an extraordinary high rate of early diagnosis, due to the large mass surveys.

We present here, the review of all cases observed in the Department of Pathology of our Hospital during the last 4 years (1974 to 1977).

MATERIAL AND METHODS

During four years (1974-77) specimens from 572 patients operated on to gastric cancer were examined in the Department of Pathology. The diagnosis of gastric cancer was made by endoscopic or surgical biopsies or by the study of resected stomachs. All the cases of gastrectomy for gastric ulcers and chronic gastritis were also reviewed. Among 209 cases operated on for Gastric Ulcer, 7 EGC were found (3.4 %). From this material of EGC was diagnosed in 42 resected specimens. All cases were operated in one of the 4 Departments of Surgery of our Hospital and of the District Hospital of Beja.

In the same period 5,221 endoscopies were performed in the Department of Medicine 2 (mainly Gastroenterology); 58, or 1.1 %, were done in 31 patients with EGC, all included in the above series of 42 cases. Endoscopic biopsies (1 to 5 specimens) were done in 25 cases.

The classification of cases of EGC was the one established on pathological basis by Japan Gastroenterological Endoscopic Society in 1962 and by the Japanese Research Society for Gastric Cancer in 1963, as follows: "

- Type I — Protuded
 Type II — Superficial: IIa — elevated
 IIb — flat
 IIc — depressed
 Type III — Excavated.

The clinical picture was accessed in 38 patients with EGC and in 117 with Invasive Gastric Cancer.

RESULTS

The 42 cases represent 7.3 % of the total number of carcinomas of the stomach examined in the Department of Pathology of our Hospital. The ages range from 30 to 70 years, with the average age of 54, 55.4 for males and 51.9 for females. The ratio of males/females is 2.5/1.0. On the Invasive or Advance Gastric Cancers the average age is similar, 59.4, with a modal distribution. In the EGC the modal distribution is only found in males; females have a flat distribution curve (Fig. 1). The male/female ratio in the Invasive Gastric Cancer is 1.6/1.

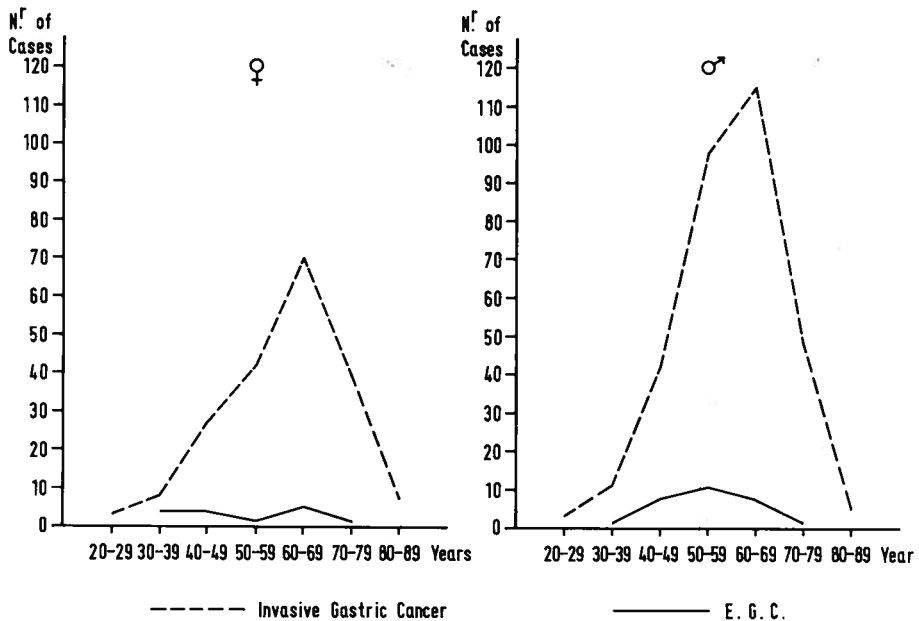


Fig. 1 — Sex and age distribution in Invasive Gastric Cancer and Early Gastric Cancer, in Portugal

Morphology

The combined types IIc/III and III/IIc were all registered as type III. On the whole, types IIc, III and combined types are the majority, 73.8 % of all cases. There is however a high figure for IIb alone, 21.4 % (Table 1).

The majority, 27/42, are glandular highly differentiated adenocarcinomas and 30/42 are limited to the mucosa; 12 have invasion of the submucosa (Table 2).

The majority are localized in the lesser curve, in the antrum area (Fig. 2).

In 3 cases there were multicentric carcinomas, the different localizations being of the same type.

No lymph nodes metastases were found. No cytology was performed.

Table 1

Early Gastric Cancer: morphological types

Type	1974	1975	1976	1977	Total	%
I	—	—	—	1	1	2,4
IIa	—	—	1	—	1	2,4
IIb	—	2	—	7	9	21,4
IIc	3	1	3	3	10	23,8
III	6	5	6	4	21	50
Total	9	8	10	15	42	100

Table 2

Degree of penetration and degree of differentiation

		Total	Degree of differentiation		
			high	moderate	poor or no
		42	27	8	7
Intramucosal		30	21	4	5
Submucosal	Slight	4	3	1	—
	Extensive	8	3	3	2

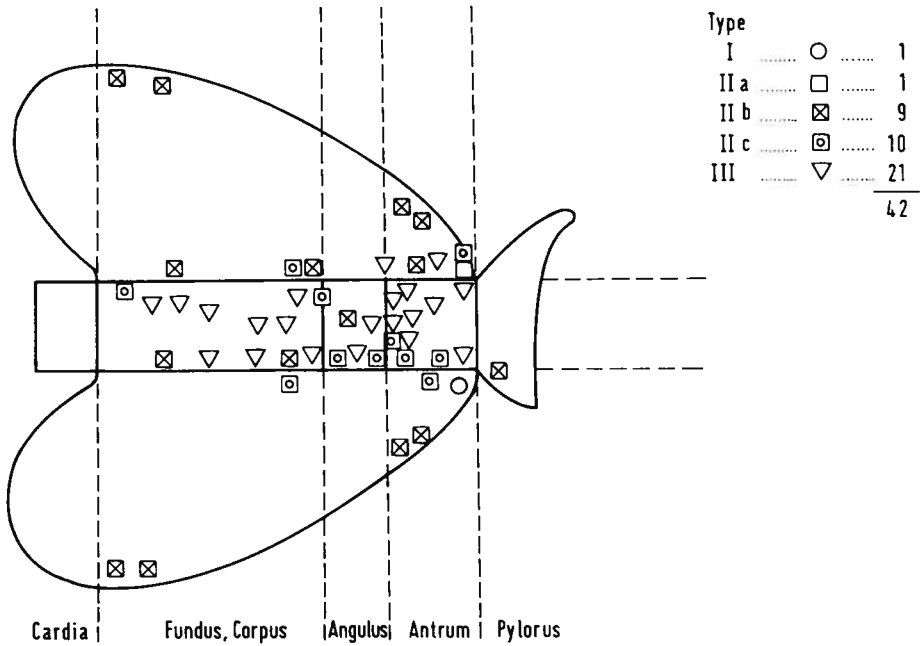


Fig. 2 — Distribution all over the stomach and types, in E. G. C.

Clinical picture

The main symptoms in cases of Invasive Gastric Cancer (Table 3) are the general complains of loss of weight, astenia and epigastric pain, whereas the main symptoms in the EGC are pain, vomiting, heartburn, flatulence and loss of weight. Upper G. I. bleeding is more frequent (46.1 %) in the Invasive than in the Early Cancer (31.6 %). Patients with EGC have dyspepsia for long periods, more than 5 years in 50 %. In some cases the dyspepsia started back 40 years ago. The majority of patients with Invasive Cancer have dyspepsia for less than 1 year (Fig. 3).

The diagnosis of malignancy was done previous to surgery in 83 % (35/42) of the cases (Fig. 4): by endoscopy in 28 %; by biopsy in 36 %, and by conventional radiology in 19 %. The first method to alert for the probable diagnosis of malignancy was either endoscopy in 36 %, radiology in 33 % or biopsy in 31 % of all cases.

False negative results were obtained in one fourth of the cases on endoscopy or on biopsy, and in half on radiology (Fig. 5).

Only 17 % (7/42) came to the operating room without the diagnosis of malignancy.

Follow-up

An enquiry was sent to everyone or to their doctors, and no information was obtained from 8 patients. From the 34 followed, 32 patients were alive and 2 were dead in January 78. The survival rate for patients diagnosed in different years was as follow: 4 from the 9 diagnosed in 1974, 6 from the 8 diagnosed in 75, 8 from the 10 diagnosed in 76, and 14 from the 15 diagnosed in 1977 (Fig. 6).

Table 3

Symptoms in Gastric Cancer (%)

	E. G. C. 38 cases	Invasive Gastric Cancer 117 cases
Pain	92.1	82.9
Vomiting	68.4	54.7
Loss of weight	60.5	75.2
Heartburn	57.9	30.7
Flatulence	52.6	29.9
G. I. bleeding	31.6	46.1
Diarrhoea	18.9	14.5
Asthenia	23.7	53.8
Flatulence	8.1	15.4
Regurgitations	5.4	6.8
Ulcer perforation	2.7	—
Disphagia	2.7	12.8
Ascites	2.7	17.9

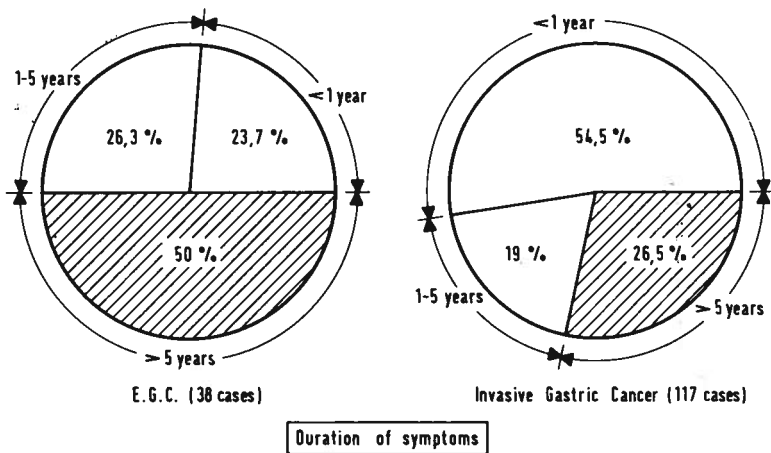


Fig. 3 — Duration of symptoms in E. G. C. and Invasive Gastric Cancer

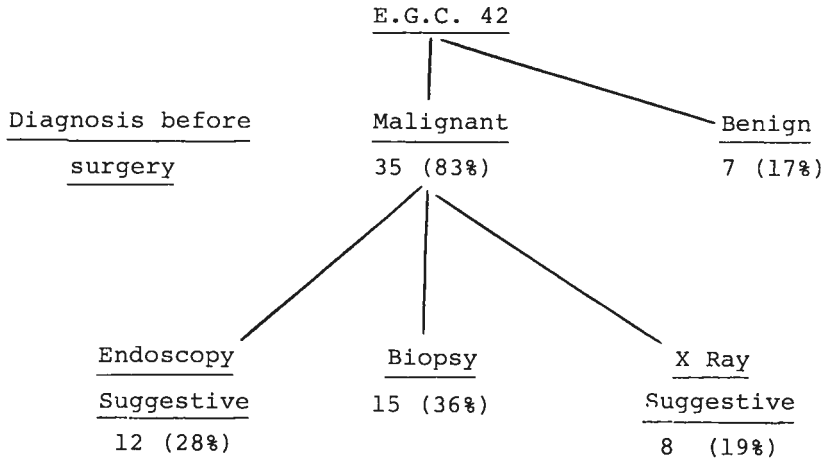


Fig. 4 — Methods of diagnosis of E. G. C. before surgery

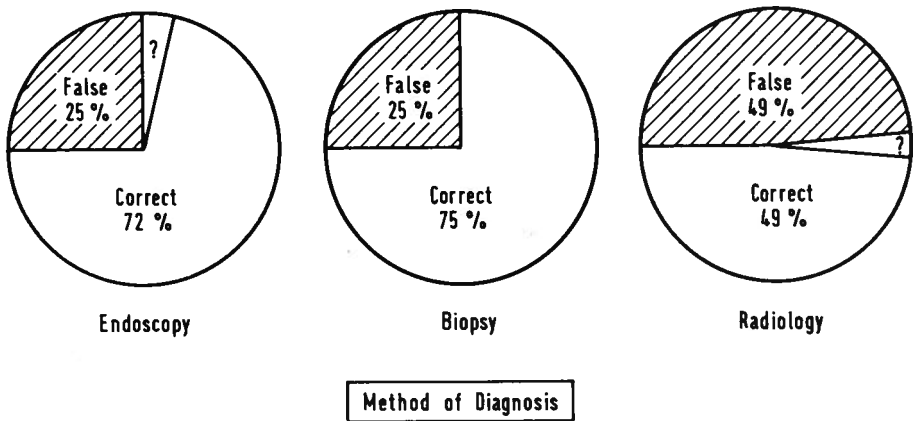


Fig. 5 — Correct and false diagnosis of E. G. C. on Endoscopy, Biopsy and Radiology

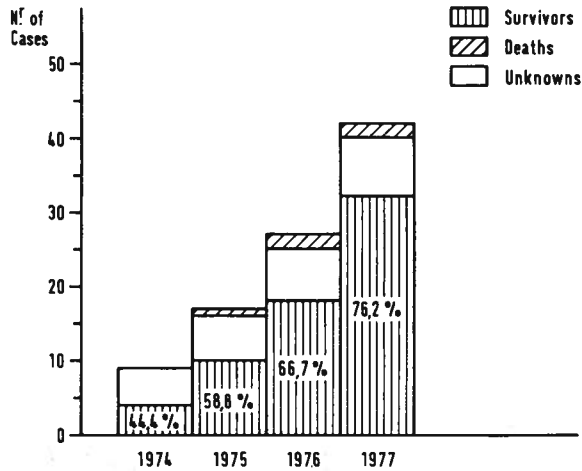


Fig. 6 — Cumulative survivals and deaths of E. G. C.

DISCUSSION

The frequency in our serie of EGC, 7.3 % of all gastric cancers diagnosed during the same period, is in the same order as the refered in 1975 by Miller and Kaufmann in Europe, 6.29 %, ^{6, 7} in a large enquiry involving 261 centers of endoscopy.* These figures are higher than the ones from the United States, 4.3 %, ⁵ but much lower than the figures found in the Japanese literature, around 40 %.³

The incidence of different types varies from country to country. In our series it is striking the small percentage of type I (2.4 %) ant the high percentage of type IIb (21.4 %) and type III (50.0 %) (Table 4). The high incidence of type IIb could be due to special features of presentation, like chronic gastritis or repitization of malignant ulcer.

There are some differences on the distribution in sex and age. The EGC is much more frequent in males than females (2.5/1.0), compared with the invasive gastric cancer (1.6/1.0). The modal distribution, with maximum at 60, observed in the Invasive

Table 4
Incidence of different types in Europe

Type	Portugal Present series 42 cases	Denmark Johansen, 1976 64 cases	Europe 68-73 Miller, 1975 1170 cases	Europe 74-77 Miller, 1978 1621 cases
I	2.4	15.6	22	20.4
IIa	2.4	4.7	15	10.4
IIb	21.4	9.4	14	10.7
IIc	23.8	18.7	25	31
III	50.0	51.6	24	27.5

Gastric Cancer is observed only in males with EGC and not in females, where half are less than 50 years old.

The clinical picture is also very different: the EGC appears in patients with long dyspeptic syndromes, who have been seeking medical advice for that. The Invasive Gastric Cancer patients come to the doctors mainly with symptoms of a widespread severe disease. These reasons lead some people to think that they are two different diseases. Okabe¹¹ and Ming¹² referred to two types of gastric cancer: one type with an insidious evolution comes to medical attention very late (the types IIa+IIc of the EGC might be the know, early stage of these group); and another type, with very slow growth and early symptoms often detectable in its early stage, accounts for 10 % only (the majority of EGC comes into these). Both groups have the same histological types.

There is no doubt that EGC becomes invasive with time. Misaki¹³ has followed about 100 patients who refused surgery and he showed a medium period of 4 years for the EGC to become Invasive. In animals, with chemical cancerigenic inductors, Murakami¹⁴ arrived at a similar time lag (3 years). These findings are confirmed by the great increase in early diagnosis by the Japanese since they introduce mass surveys for detection of gastric cancer. The same would happen in European Countries, if proper methods and organization were started.

During the last 10 years gastric cancer represents, as cause of death, 24 to 26 % of all tumors in Portugal,¹² and is the single one more frequent. It is the cause of 2.768 to 3.029 deaths/year, during the same period. This figure is similar to the one for chronic bronquitis and emphysema or for liver cirrhosis, and represents about 3 % of all deaths. Gastric Cancer has a tremendous mortality and the 5 years survival is 9 % on the advanced forms.¹ But the EGC has a five years survival of 95.5 %.¹ So it seems worthwhile to devise plans and mechanisms for some kind of survey on order to have an earlier diagnosis. Probably the most sensible and possible for our financial resources, would be to follow carefully all groups at higher risk like atrophic gastritis, gastric ulcers, gastric polyps and patients with gastrectomies for more than 10 years.

It will be possible only after the set up of Endoscopic Units in all District Hospitals. This is absolutely essential to have significant results in this kind of disease, all over the country.

Acknowledgements

We wish to thank all the surgeons who operated on these patients and allowed us to have access to the charts and follow-up.

RESUMO

Entre 1974 e 1977 foram feitos 42 diagnósticos de Carcinoma Gástrico Precoce, entre um total de 572 carcinomas do estômago operados, o que corresponde a uma incidência de 7,3 %. Os tipos morfológicos foram os seguintes: I — 2,4 %; IIa — 2,4 %; IIb — 21,4 %; IIc — 23,8 % e III — 50 %. Três casos eram multicêntricos. O diagnóstico pré-operatório de doença maligna foi feito em 83 % dos doentes: em 28 % por endoscopia; em 36 % por biopsia e em 19 % por radiologia convencional. Mais de 50 % tinham dispepsia com duração superior a 5 anos. Registaram-se episódios de hemorragia digestiva alta em 31,6 % dos casos.

REFERENCES

1. EDITORIAL: Screening for Gastric Cancer in the West. *Lancet* II: 1978; 1023-1024.
2. JOHANSEN AA: Early Gastric Cancer in *Current Topics in Pathology*: p 1-47 (BC Morson, Springer-Verlag, Berlin - Heidelberg - New York, 1976).
3. KAWAI K: Brief Communication on Early Gastric Cancer in Japan. *Bullet Europ Soc GI End* 1978; 11: 13-14.
4. KIDOKORO T: Frequency of Resection, Metastasis on five-year Survival Rate of Gastric Carcinoma in a Surgical Clinic. *Gann Monograph Cancer Research*. 11: 45 (University Park Press, Baltimore - London - Tokyo, 1971).
5. McGRAY RS: Early Gastric Cancer in North America, 1978. *Bullet Europ Soc GI End* 1978; 11: 1013.
6. MILLER, KAUFMANN: Das Magenfrühkarzinom in Europe. *Dtsch med W'schr* 1975; 100: 1946-1949.
7. MILLER G, FROELICHER P: Early Gastric Cancer in Europe. *Bullet Europ Soc GI End* 1978; 11: 15-21.
8. MING S: Gastric Carcinoma. *A Pathobiological Classification Cancer* 1977; 39: 2475-2485.
9. MISAKI: Early Gastric Cancer Symposium in IV World Congress of Digestive Endoscopy, Madrid, 1978.
10. MURAKAMI T: Symposium Early Gastric Cancer, IV World Congress of Digestive Endoscopy, Madrid, 1978.
11. OKABE H: Growth of Early Gastric Cancer. *Early Gastric Cancer* p 67-79 (Murkami, T., University Park Press, Baltimore - London - Tokyo, 1971).
11. PORTUGAL. — Estatística de Saúde 1971-1975. Instituto Nacional de Estatística.

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