

Q classify Tumors of Stomach-

A) WHO classification of gastric tumors.

- A) Epithelial benign / pre-malignant lesions
- B) Epithelial malignant tumours
- C) Non-epithelial tumours
- D) Secondary tumours.

X-----X
A) epithelial benign / pre-malignant lesions.

- ① Adenoma. {pre-malignant}
- ② Intraepithelial neoplasia {dysplasia}

B) Epithelial malignant tumours.

- I. Carcinoma. (95%)
 - ✓ adenocarcinoma. (90%)
 - Intestinal
 - diffuse type.
 - ✓ papillary adenocarcinoma
 - ✓ Tubular adenocarcinoma
 - ✓ mucinous adenocarcinoma
 - ✓ signet ring adenocarcinoma
 - ✓ Adenosquamous carcinoma
 - ✓ Squamous cell carcinoma
 - ✓ small cell carcinoma
 - ✓ undifferentiated carcinoma.

II. CARCINOID TUMOUR (3%)
{from endocrine cells like enterochromaffin cell}

C. Non-epithelial tumours (6%)

- ✓ Leiomyoma {most common}
- ✓ Schwannoma
- ✓ Granular cell tumour
- ✓ Glomus tumour
- ✓ Leiomyosarcoma
- ✓ GIST
- ✓ Kaposi's sarcoma
- ✓ malignant lymphomas

D. Secondary tumours (1%)

Q) Etiology and pathogenesis of Gastric Carcinoma

1. adenocarcinoma is the most common malignancy of stomach, comprising more than 95% of all gastric cancers.

Etiopathogenesis / Risk factors for Carcinoma stomach

- ① Environmental factors
- ② Host factors
- ③ Genetic factors.

A. Environmental factors

→ distal intestinal type of Gastric Ca.

① H. pylori infection - {in stomach}

causing chronic atrophic gastritis, intestinal metaplasia, hypochlorhydria.

is a risk factor.

- 3-6 x higher.

* PUD is associated w reduced risk of Gastric Ca. { duodenal PUD? }

② Dietary factors.

Nitrate found in smoked, cured, salted food are converted to nitrites.

that are carcinogenic.

- benzopyrene in smoked food.

✓ dietary deficiency of fresh green leafy vegetables & fruits, vit A, C.

✓ tobacco smoke, alcohol intake.

✓ low socio-economic group.
→ complex carbohydrate consumption.

③ Rubber and coal workers.

④ EBV.

③ Host factors. / predisposing condition.

✓ chronic atrophic gastritis with intestinal metaplasia & hypochlorhydria.

✓ Adenomatous polyps.

✓ Barrett's oesophagus → GERD & obesity.

✓ Menstrual disease.

C. Genetic Factors

✓ Blood group A

Hereditary diffuse carcinoma.

① Familial gastric carcinoma.
→ hereditary germline mutation in CDH1

which codes for E-cadherin.

↓
autosomal dominant

② → Sporadic diffuse carcinoma

50% - CDH1 LOF mutation somatic mutation

50% - ↓ E-cadherin expression

due to methylation / silencing of CDH1 promoter.

• In association with

FAP

HN PCC.

③ Intestinal type gastric cancer

→ occurs due to mutations that increase WNT pathway signalling.

occurs due to:

• Loss of function mutation in APC gene

• gain of function of β-catenin gene mutation in

• silencing / LOF mutation in genes in

• TGF-β signalling

• BAX

• CDKN2A.

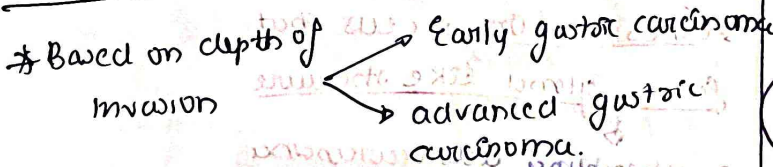
Q) Describe morphology/gross or mc features of Gastric CA

Site

- pylorus and antrum] 50-60%
- lesser curvature
- other less common locations: Cardia, fundus.

main morphological classifications of gastric carcinomas

- Based on depth of invasion
- Based on macroscopic growth patterns
- Based on histological subtype [Lawren's classification]



* Early gastric carcinoma (UG) (SN)

"It is defined as cancer that is limited to mucosa or submucosa with or without perigastric lymph node metastasis."

- It doesn't refer to duration of disease, size, presence of symptoms, absence of metastasis
- tumor confined to mucosa & submucosa irrespective of lymph node status.

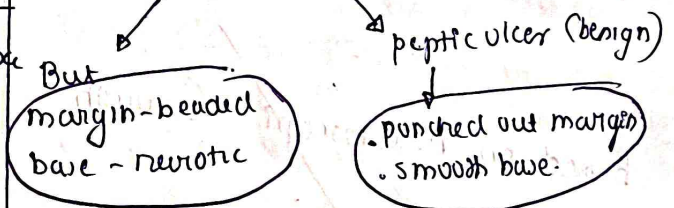
GROSS

Early gastric carcinoma has 3 patterns

- Type I - Exophytic/polypoid solid tumor - protrudes into lumen
- Type II - Superficial, without nodular mass
 - Type IIa - Elevated type
 - Type IIb - Flat type
 - Type IIc - Depressed type. {shallow margin not deep}
- Type III - Excavated type.

→ shallow/deeply erosive crater in the wall of stomach & margin ✓

↓ which resembles chronic peptic ulcer.

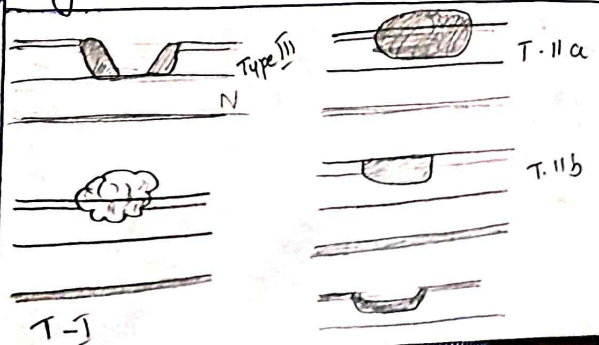


Histologically

Typical glandular adenocarcinoma

Prognosis

good.

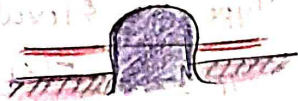


ADVANCED gastric carcinoma

When the carcinoma crosses submucosa into muscularis propria or beyond, it is referred to as advanced gastric carcinoma.

Boorman's classification for growth pattern of advanced G.C.

Type I



Type II

fungating



Type III

ulcerated



Type IV

Infiltrative
{inertus plastica}



Based on macroscopic Growth Pattern

the one used in advanced gastric carcinoma is used for EGA as well.

Type I, IIa, b, c, III.

Based on Histological Subtype

LAUREN CLASSIFICATION

Intestinal type

Diffuse type
mucinating type

Intestinal type [Both]

learn BOX

Intestinal Type

GROSS

✓ polypoidal bulky tumor / ulcerated with heaped up borders.

• m/c site - antrum, lesser curvature

- often preceded by X
H. pylori gastritis and
intestinal metaplasia.

m/c

✓ cohesive tumor cells that forms gland like structure

↓
• resembling adenocarcinoma of colon

✓ tumor cells show apical mucin vacuoles

Diffuse Type

GROSS

• Infiltrates deeply into stomach wall without forming obvious mass lesions.

• affects broad region or entire stomach.

evokes desmoplastic reaction.

↓
flattening of rugal folds.

↓
rigid, thickened wall.

↓
leathery, bottle appearance.

↓
Linitus plastica.

mc

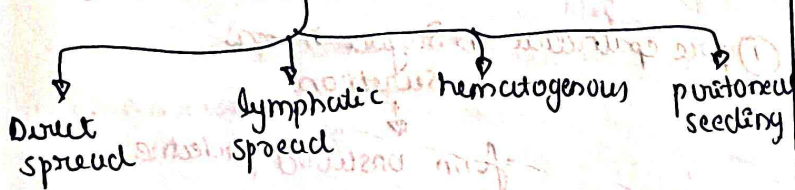
• discohesive tumor cells → do not form glands.
{ loss of E-cadherin }

• tumor cells contains abundant mucin

↓
push nucleus to periphery.

↓
Signet ring appearance of tumor cells.

Mode of Spread



Direct spread → { tumor invades adjacent structure }

- pancreas
- colon
- liver
- diaphragm

Lymphatic spread

- Supraclavicular node (Left) - Troisier's sign - Virchow's Node
- periumbilical node - Sister Mary Joseph node
- left axillary node - Irish Node

Hematogenous

- ~~Tumor spreads~~
- Liver - via portal veins. (Muc blood spread)
- Lungs - via systemic circulation
- Bones - spine, pelvis etc...
- Brain - rare.

Transcoelomic spread or peritoneal seeding

- Krukenberg tumor - ovary
- Blumer's shelf - pouch of Douglas.

