

TUMORS OF SMALL AND **LARGE INTESTINE**

M. O. Al-Sohaibani, MBBS, FCAP, FRCPath

- **SMALL INTESTINE**
- Represent 75% of the length of its alimentary tract its tumors account for 3-6% of GIT tumors.
- **Benign** – rare, incidental, benign stromal tumor are the commonest as leiomyoma, followed by adenoma and haemangioma or lymphangioma, lipoma, hamartoma. They are more common than malignant.
- **Malignant** :
- **Carcinoid Tumor:** Peculiar tumors arise at any of the body but the specific clinical feature are most commonly exhibited by those found in the ileum.
- Enterochromaffin
- Kulchitsky cells belong to APUD cells.
- Can arise any where in the G.I.T. They have secretory granules which stain positively with silver salts (Argentaffin granules). Many stain after addition of exogenous reducing agent (Non-Argentaffin or argyrophil granules)

- **Mid gut** – 60 – 80% - argentaffin – positive seen in terminal ileum and appendix.
- Hind gut – 10-20% - Occurring in rectum and colon and are more commonly argyrophil type.
- **Fore Gut** – Located in stomach, duodenum and esophagus are argyrophil type and account 10-20%.
- **Other localization branches, trachea, gallbladder al Meckelis Diverticulum.**
- All carcinoid are potentially malignant in aggressive behavior which correlate with site of origin, depth of penetration and size. However, appendicular and rectum carcinoid are seldom malignant. On the other hand ileal, gastric, and colonic carcinoid are frequently malignant.
- **The cells have the capacity to reduce silver compound.**
- No reliable histologic difference between seemingly benign and obviously malignant carcinoid tumor.
- **Histogenesis:-**
- Immature, functionally uncommitted endocrine cell that frequently undergoes further differentiation argentaffinomas, gastrinomas, somatostatinoma other hormone include Insulin, ACTH, Calcitonin and others.

- **Pathology:**
- Irrespective of location they are small, round, plaque submucosal elevation mucosa may be intact or ulcerated if large. Gastric and ileal carcinoid are frequently multicentric while those elsewhere are solitary.
- Appendicular carcinoid are most often located distally or at the tip. Appendix is the most common site of gut carcinoid followed by small bowel, rectum, stomach and colon.
- They have insular, trabecular, glandular, mixed, undifferentiated patterns. The tumor cells are monotonous with round to oval nuclei and stippled chromatin mitotic activity and atypia are minimal. They have scant pink granular cytoplasm. The overlying mucosa may be intact or ulcerated.
- Fore-gut in the stomach or duodenum show trabecular or mixed pattern. mid gut – can secrete serotonin but 80% are multi-hormonal in nature.

- Hind gut: found in the rectum can produce glucagon, pancreatic polypeptide, insulin, somatostatin and serotonin.
- Most G.I.T. carcinoid are asymptomatic but may cause haemorrhage, obstruction, intussusceptions.
- **Carcinoid syndrome Include:**
- Cutaneous Paroxysmal flushing and apparent cyanosis, R. side H.F, attack of intestinal hypertroility and explosive watery diarrhea, abdominal pain, edema, pellagra like lesion of the skin and oral mucosa., systemic fibrosis with pulmonary and tricuspid valve thickening and stenosis, endocardial fibrosis, retroperitoneal and pelvic fibrosis, and collagenous pleural plaque, broncho-constrictive attack.
- Serotonin 5-hydroxytryptamine (5HT) and its metabolite – 5 hydroxyindoleacetic acid (5HIAA) is the principle agent for the above can be seen in ileal, gastric, pancreatic, appendicular, caecal and colonic but rarely rectal as well as extra-G.I.T. as lungs and ovaries.

For GI carcinoid, development of hepatic metastasis is required but since under these conditions, sufficient amount of substances produced by the tumor can reach systemic circulation without metabolic degradation by the liver. But they are not required for extra-intestinal carcinoid, because active substances produced by the tumors are directly released into systemic circulation. Other secretory products of carcinoid as tryptamine, bradykinin, kallikrein and PGs may contribute to the manifestation of the syndrome.

- **Carcinoma:-** Very uncommon but more common than small intestinal adenoma can be ring-like, polypoidal fungating, mostly found in the duodenum.
- **Gastrointestinal Lymphoma:**
- Any segment of GIT can be involved by primary or secondary.
- 40% of lymphoma arise from sites other than lymph node where gut is the most common location.
- GIT lymphoma represent 1-4% of all GIT malignancies. Therefore primary GIT lymphoma exhibit no evidence of liver, spleen, mediastinal lymph node, or bone marrow involvement time of diagnosis. However, regional lymph node involvement may be present.

- Primary GIT usually arise as sporadic neoplasm but also occur more frequently in certain population.
- Chronic gastritis caused by *Helicobacter pylori*.
- Chronic sprue like syndrome.
- Native of Mediterranean region.
- Congenital immunodeficiency state.
- Infection with H.I.V.
- Following organ transplantation and use of immune-suppression.
- Intestinal lymphoma can be sub-classified:
 - T-cell lymphoma.
 - B-cell lymphoma. This can be sub-divided into
 - MALT lymphoma – sporadic arise from B cell of MALT (Mucosa – associated lymphoid tissue).
- It is the most common form in the west. Its biology include:
 - Can be localized and easily totally surgically resected.
 - Relapse may occur in G.I.T. exclusively.
 - Genotype is different from nodal lymphoma where t(11;18) is relatively common.
 - Cells are usually CD5 & CD10 negative.

- It affect adult,
- Stomach 55-60%
- Small intestine 25-30%
- Proximal colon 10-15%
- Distal colon 10%
- Appendix and eosophagus are rarely involved etiology is unknown but helicobacter pylori of stomach type is through and intestinal type. I. B.D play a role.
 - IPSID – Mediterranean lymphoma unusual B-cell lymphoma arising in patient close to Mediterranean sea. Diffuse plasmacytosis which synthesis α -chain immunoglobulin.
- They develop malabsorption and weight loss, seen in children and young adult, equal in both sexes.
 - Intestinal T-cell lymphoma associated with celiac sprue. Occur in young individual (30-40).

- **Mesenchymal tumor.**
- Can occur any where in GIT, lipoma seen in sub-mucosa of small and large intestine, leiomyoma, leiomyosarcoma, gastrointestinal stromal tumor (GIST) distinctive type characterized by c-KIT immuno-reactivity.

- **LARGE INTESTINE**
- It is the segment of G.I.T. most frequently affected by tumours. They can be benign or malignant.
- **Benign Tumors** can be neoplastic or non-neoplastic.
- **Non-neoplastic:**
- Hyperplastic polyp metaplastic – 90% found incidentally at autopsy but 15-20% of surgically removed polyp.
- Can be seen in 6th and 7th decade of life.
- 60 – 80% can be found in the recto-sigmoid region.
- They represent the most common among all epithelial polyp particularly in the rectosigmoid.
- 20% in the ascending colon and the remainder in the rest.
- Smooth, moist, sessile occur as single or multiple. 90% < 5mm in diameter surgically removed are tend to be larger, formed from well formed glands and crypts lined by non-neoplastic epithelial cells adenomatous foci can be seen. In general they have no malignant potential but the one with adenomatous differentiation may undergo neoplastic transformation.
- Juvenile polyps – retention polyp: represent developmental malformation affecting glands and lamina propria ... hamartomatous, sporadic occur in children < 5 years. 80% occur in the rectum may give rise to painless bleeding after defecation, → iron dif. Anaemia.
- Large, smooth, rounded, lobulated, may reach up to 2cm. Larger lesion may show ulceration, torsion, infarction, mucus cystically dilated glands with intervening lamina propria. No malignant potential.
- Juvenile multiple polyposis – multiple occur through out G.I.T. but most numerous in the stomach and colon. They decrease with age due to auto amputation.
- Peutz-Jeghers polyps and polyposis: Hamatomatous, single or multiple, autosomal dominant stomach 25%, colon 30%, small bowel 100% (More common) large, pedunculated, lobulated have no malignant potential however, patients with P.J. syndrome have increased risk of developing carcinoma of pancreas, breast lung, ovary and uterus.

- **Associated with pigmentation of the lips, mouth and genitalia.**
- **Inflammatory polyps pseudopolyp:- occur in longstanding inflammatory bowel disease most commonly ulcerative colitis and rarely Crohn's disease result from re-epithelization of the mucosa. They are worm-like have cylindrical connective tissue, inflammatory cells and cystically dilated epithelial glands. Can occur as segmental or diffuse, no malignant potential.**
- **Lymphoid polyps: occur as mucosal protrusion secondary to hyperplasia of mucosal and sub-mucosal lymphoid tissue mainly in terminal ileum and rectum.**
- **Can be (a) diffuse or (b) localized.**
 - **The diffuse type is uncommon and occur in children and young adults.**
 - **Localized – affect elderly in the rectum and more common. Small, asymptomatic have no malignant potential. It has familial incidence, can be mis-diagnosed as lymphoma.**

- **Neoplastic polyps** → **Epithelial**
- → **Non-Epithelial**

- **Epithelial derived from a secretory epithelial) increase incidence with age where at age of 60 years 20% of the population are affected.**
- **Three forms:**
- **Tubular – 75% of benign adenoma sporadic and single but are also multiple encountered in certain well defined hereditary is part of familial polyposis syndrome with autosomal dominant inheritance pattern. M : F = 2:1**
- **50% - single and the rest <2 sessile, pedunculated, raspberry head, general < 1cm. Cellular atypia and lack of differentiation are noted. 20 – 25% of villous are as can be seen and considered as Tubular-adenoma. Fibrovascular core is usually spared. In general T.A < 1cm. have 1% chance of developing invasive tumor.**
- **1-2 cm – chance is 10%**
- **> 2cm chance 40%.**

- **It can remain asymptomatic or manifested by rectal bleeding.**
- **Villous adenoma:**
- **They are more common beyond 3rd decade of life, occur most common in the distal colon and rectum.**
- **It is less common than tubular adenoma.**
- **Age 60-65 M > F**
- **75% - rectum and rectosigmoid followed by caecum and ascending colon. Size range 1-10cm., or more.**
- **hge, ulceration can be seen. There is linear correlation between size of the polyp and villous feature.**
- **They are symptomatic rectal bleeding, produce copious amount of mucoid material. They are pre-malignant in which invasive carcinoma can be harbored in 35%.**

- ***Tubulo-villous adenoma:-*** Papillary adenoma, villoglandular adenoma. It is intermediates form of pattern between T.A. & V.A.
- *Villous component range between 20-50%.*
- *> 50% - villous adenoma.*
- *< 20% - tubular adenoma.*
- *Dimension 0.5 – 5cm.*
- *Familial polyposis include*
- *1. Familial polyposis coli (Adenomatosis) applicable with the presence of 100 neoplastic polyp on the mucosa of colon. Average 1000 multiple adenoma usually don't exceed 100.*
- *Autosomal dominant.*
- *It has very high malignant potential where virtually in 100% of cases if treatment by total colectomy is not done.*
- *2. Gardner's syndrome.*
- *Familial polyposis + multiple osteoma particularly in mandible and maxilla) + sebaceous cyst and connective tissue tumor.*
- *It has less polyp but identical behaviour.*
- *3. Turcot syndrome*
- *Familial polyposis + malignant neoplasm of CNS.*
- *4. Juvenile polyposis syndrome.*
- *Multiple juvenile polyposis in colon, stomach, small intestine but number is less than familial polyposis syndrome. They resemble juvenile polyposis.*

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- ***Collagenous sprue:***
- *Regarded as the end result of celiac sprue in which the villi are totally absent (total villus atrophy) characterized by broad bands of collagen under the basal lamina of the surface epithelium. This condition is refracting to any treatment and the course is generally brutal.*

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- Malignant colorectal neoplasm
- 98% of large bowel malignancies are carcinoma.
- It is the most common visceral cancer.
- Colorectal carcinoma show marked variation in
 - Geographic distribution.
 - It is more common in North America, Europe than South America, Africa and Asia.
- Dietary role in etiology include:
 - Low content of unabsorbable vegetable fibers due to low stool bulk.
 - high content of refined CBH change in.
 - high fat content → ↑ cholesterol and its metabolites which are carcinogenic.
 - - Hereditary polyposis.
 - - Ulcerative colitis.
- 60 – 70% in rectum, sigmoid, rectosigmoid the remainder are evenly distributed. Right is polypoidal and obstruction is uncommon. Left – encircle the wall .
- → Obstruction
- microscopically they are similar. Clinical – occult bleeding.
- Staging
 - A – limited to mucosa.
 - B1 – muscularis propria. No nodes.
 - B2 – entire wall but no node.
 - C1 – limited to the wall with nodal involvement
 - C2 – all layers with nodal involvement.
 - D - Distant metastasis.