ADENO-CARCINOMA OF RECTUM, SIGNET RING TYPE

Prasanta Kumar Baruah	Professor, Department of Pathology, Jorhat Medical College and Hospital
Nilutpal Bora	Assistant Prof, Department of Surgery, Jorhat Medical College and Hospital
Basanta Sonowal	Associate Prof, Department of Pathology, Jorhat Medical College and Hospital
Karan Borah	1st Yr PGT, Department of Pathology, Jorhat Medical College and Hospital

BACKGROUND

Colorectal cancer (CRC) is the third most common cancer in men and second in women worldwide, with significant geographical, racial and ethnic variation in its incidence rate and pattern with more than 1.4 million new cancer cases every year. Considering geographical variation in the incidence rates with more than half of the cases of CRC occurring in developed countries. However, mortality is higher in the less developed countries who have limited resources and inadequate health infrastructure. With the advancement of treatment facilities and early detection by screening there is gradual decline in the mortality rate due to CRC. Globally, cancer of rectum and anus constitutes more than 40 percent of the CRC cases, and its incidence peaks between the age of 60 and 70 yr, while its occurrence in patients below 40 years is rare.

CASE REPORT

A 53 years, male, businessman by profession residing in a rural region of Golaghat district presented with a history of something coming out of anal region since 1 year, bleeding per anus since 1 year, irregular bowel movements with sense of incomplete evacuation since 6 months for which he was admitted at Jorhat medical college and hospital and given symptomatic treatment. He was operated (Operative procedure Executed: Abdomino perineal resection).

INVESTIGATION

Hb-9.8 gm/dl; TLC-6,500cells/cumm; DLC:-N 67.8% L 23.8% M 5.5% E 2.6% B 0%; ESR-20mmAEFH.Platelet count- 2.53 lakh/cumm; PT-13.2 sec INR- 1.15; RBS-120 mg/dl; S.urea-24mg/dl; S.creatinine-0.83 mg/dl; Bilirubin(Total)-0.8 mg/dl; S.bilirubin(direct)-0.2 mg/dl; S.bilirubin(Indirect)-0.6mg/dl; AST-29IU/L; ALT-25IU/L; ALP-52IU/L; Total protein-8gm/dl; Albumin-4.5 gm/dl; Globulin-3.5 gm/dl; HIV-NR;HBsAg-negative; HCV-negative.

Digital Rectal Exam (DRE):-irregular growth fell at the rectum at around 4 cm above the anal verge.

Proctoscopy:- irregular growth at the lower end of rectum.

CECT SCAN ABDOMEN:- There is marked circumferential bowel wall thickening extending from the anorectal junction to part of rectum approximately 9 cm in length. The maximum wall thickness is 17.6 mm. There is no definitive rectal wall, mesorectal fat, urinary bladder or bony invasion. Few Subcentrimetric mesenteric node noted. Visualized vertebrae appear normal. Minimal free fluid noted in mesenteric region.

COLONOSCOPY: Scope passed upto transverse colon.

RECTUM   RECTUM   RECTUM

RECTUM: - a semi circumscribe irregular growth seen at the beginning of the stomach.
SIGMOID COLON: normal
DESCENDING COLON: normal
TRANSVERSE COLON: normal

IMPRESSION: RECTAL GROWTH.
HISTOPATHOLOGY REPORT

Nature of specimen: 1. Recto sigmoid colectomy 2. Lymph node.
Gross: Specimen 1. Received a specimen of recto-sigmoid colectomy measuring 32 cm in length with two marked sutures. An ulcerative tumor with raised margins measuring 5 X 5 cm is seen 25 cm from the proximal and 3 cm from the distal resection margin. The tumor is 1.5 cm below the anterior peritoneal reflection. It involves the posterior and lateral walls. Non peritonealised surface is grossly free of tumor and is 1 cm from the tumor. Tumor site perforation is absent. TME is through intramesorectal plane. Hence quality of TME is nearly complete. Rest of colon is unremarkable.8 nodes dissected at the level of the tumor, 6 nodes dissected above the level of the tumor, 2 nodes dissected below the level of the tumor.

Specimen 2. Also received a soft tissue measuring 2 x 1.2 x 0.5 cm. Outer surface- smooth, grey-white to grey brown. Cut section- solid, grey white.
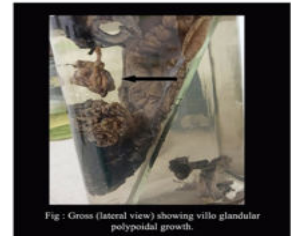

Fig : Gross (front view) Tumor proper.

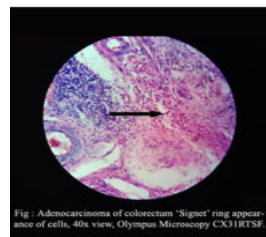Fig : Gross (lateral view) showing villo glandular polypoidal growth.

Fig : Adenocarcinoma of colorectum 'Signet' ring appearance of cells, 40x view, Olympus Microscopy CX31RTSF.
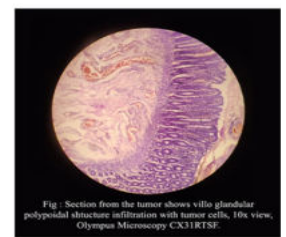

Fig : Section from the tumor shows villo glandular polypoidal shtucture infiltration with tumor cells, 10x view, Olympus Microscopy CX31RTSF.
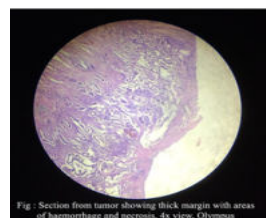

Fig : Section from tumor showing thick margin with areas of haemorrhage and necrosis, 4x view, Olympus Microscopy CX31RTSF.
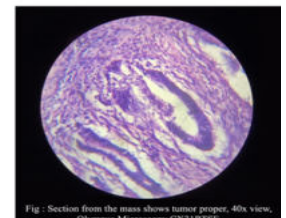

Fig : Section from the mass shows tumor proper, 40x view, Olympus Microscopy CX31RTSF.

Sections taken: A= growth including full thickness wall and mesorectum NPS(posterior wall); B=growth including full thickened wall and mesorectum NPS(anterior lateral wall); C=Growth + full thickened wall + mesorectum NPS(posterior wall); D=growth + full thickened wall and NPS(posterior wall); E=normal mucosa; F=8 lymph nodes from level of the tumor; G=6 lymph nodes above the tumor; H= 2 lymph nodes below the tumor; I= proximal resection margin; J= distal resection margin; K=A/P from separate soft tissue.

MICROSCOPY: Specimen: Recto-sigmoid colectomy.
- Moderately differentiated adenocarcinoma of the rectum.
- Tumor invades the muscularis propria into subserosa. Serosa is free.
- Lymphovascular emboli are not seen.
- Both the longitudinal resection margins are free of tumor.
- Circumferential resection margin is free of tumor.
- All the five separately submitted lymph nodes are free of tumor.
- Rest of the colonic segment is unremarkable.

IMPRESSION: Rectosigmoid colectomy.
- Moderately differentiated adenocarcinoma of rectum.
- TNM-$T_3N_0M_x$.

IHC: Advised/Waiting.
Molecular profiling: Advised/Waiting.

DISCUSSION

In our clinical setting, we often encountered adenoma of large intestine in routine endoscopy. Adenomas are more common in countries with a high risk of colorectal adenocarcinoma (e.g., Europe and North America). Adenomas are more common in men, and the incidence increases with age, as does the number of adenomas. (Fletcher D.M. 4th Edi.)

Adenoma-carcinoma sequence: There is strong evidence to suggest that colonic adenocarcinoma evolves from pre-existing adenomas, referred to as adenoma-carcinoma sequence. (Text Book of Pathology, Harsh Mohan, 7th Edi.)
Approximately 1.2 million new cases of colorectal adenocarcinoma, and 600,000 associated deaths, occur each year worldwide. Thus, colorectal adenocarcinoma is responsible for nearly 10% of all cancer deaths.(Robbins & Cotran,Pathological Basis of disease, 9th Edi)

Primary colorectal cancer reveals that about 60% of the cases occur in the rectum, followed in descending order, by sigmoid and descending colon (25%), caecum and ileocaecal valve (10%); ascending colon, hepatic and splenic flexures (5%); and quite uncommonly in the transverse colon.. (Text Book of Pathology, Harsh Mohan, 7th Edi.).

Colorectal cancer (CRC) is very frequent in the general surgical departments of Medical Colleges in Eastern India and having a very high global incidence rate annually.

Prachi S.Patil, Avanish Saklani and their associates enumerated that In India, some registries have shown decreasing trend/stable incidence while others have shown an increasing trend for rectal cancer . The six population-based registries have shown an increase in the rates of colon cancer. This probably reflects changing lifestyles and urbanization leading to a change in the environmental risk factors.

As per some national data, Population based cancer registries in India cover only 7.45% of the population, while worldwide cancer registries cover 21% of the population; so, some amount of under reporting may be possible in India. (GLOBACON 2008)

Patient age, patient clinical histories are very important factor in relation to treatment protocol. Data shows a high numbers of patients are younger age in eastern India in comparison to other parts. Younger the age of the patient , incidence of the signet ring tumor is high that described in the West which required further pin point clinical evaluation.(J.Ferlay, R.D. at all GLOBACON 2012).

At the same time the clinician should also be trained to document for recording the importance of detailed familial history, nutritional assessment and further treatment plan as because this category of patients are malnourished, cachexic and suffers from multiple vitamin and mineral deficiencies.(American Cancer society 2014)

REFERENCES
1. Diagnostic histopathology of tumor Christopher D.M. Fletcher 4th Edition, page 452.
2. Text book of Pathology, HARSH MOHAN, 7th Edition, page 570-571.
3. Robbins & Cotran 'Pathologic Basis of Diseases', 9th Edition, page 810.
4. Lyon, France: International Agency for Research on Cancer; 2010.GLOBACON 2008.
5. Ferlay J,Dikshit R, Elser S, Mathers C, Rebelo M,Parkin DM, Forman D, Bray, F(2013) GLOBACON 2012 V1.0, cancer incidence and mortality worldwide: IARC
6. American Cancer Society (2014) Cancer Facts & figures 2014.
7. National Cancer Registry Programme(2010) Development of an atlas of cancer in India.
8. Lindsey A Torre, Freddie Bray; Global cancer statistics, 2012.
9. Prachi S.Patil, Avanish Saklani, Pravir Gambhire "Colorectal Cancer in India: An Audit from a tertiary Center in a Low Prevalance Area" Indian J Surg Oncol.2017Dec; 8(4): 484-490.