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Malignant Tumors of Small Intestine, an Institutional Retrospective Study over a Period of Ten Years.

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***Abstract** : Malignant tumors of small intestine are very rare when compared to large intestine. The aim of the study is to know the location ,morphological type of tumor, age incidence, sex distribution and using special stains and immunohistochemistry.*
***Materials And Methods**: A retrospective analysis 656 consecutive biopsy resected specimens of small intestine was studied in Department of General surgery and pathology Guntur Medical Collage / Government General Hospital , Guntur for period of ten years retrospectively. The clinical data and records were reviewed ,the paraffin blocks was collected for better sections ,special stains and immunohistochemistry was done where ever necessary.*
***Results**: Most of the cases in our study were in the age group of 45-75 years and most common malignant tumour was primary adenocarcinoma and common site of involvement is the duodenum.*
***Conclusion**: Small intestine tumors are rare diseases but approximately half of them are malignant.Most malignant tumours were Primary adenocarcinoma occurs with mean age group of 60years predominantly in males and in the duodenum. Followed by metastatic carcinomas,malignant lymphomas and carcinoid.Lake of symptoms leads to late diagnosis with advanced disease and poor prognosis.*
***Key Words**: Primary adenocarcinoma ; NET ;GIST; IHC*

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I. Background:

Malignant tumours of small intestine are very rare when compared to large intestine. According to the epidemiological studies most malignant tumours were adenocarcinoma and carcinoids followed by gastrointestinal stromal tumours (GIST)and lymphomas . The incidence of small intestinal malignancies were increasing .The overall survival for 5 years is 45% i.e 25% for adenocarcinomas, 62% for lymphomas 85% for neuroendocrine tumors (NET). Therefore the prognosis of small intestine malignancy is very poor .In this study 21 cases diagnosed histopathologically as malignant tumours of small intestine among 656 consecutive pathological specimens of the small intestine.

II. Materials And Methods

Clinical and histopathological records were reviewed and paraffin blocks were collected for a period of ten years in search of malignant tumours in 656 consecutive small intestine biopsies. Four microns thick sections were cut with Leica microscopy and routine haemotoxyline and eosine stain was performed. Special stains, IHC was done wherever necessary .

III. Results

A total of 21 malignant tumour (3.2%) was found among 656 specimens ,there were 11cases (52.3%) of primary adenocarcinoma , 3 cases (14.2%) metastatic carcinomas 3 case of malignant lymphomas 2(9.5%) cases of carcinoid and 2(9.5%) cases of GIST.

In 11 cases of primary adenocarcinoma the age incidence ranges from 45-75 years with mean age of 60 years . The male to female ratio is 7:4 .Of the 11 cases of 10 cases were fragmented endoscopic biopsies and one case is tumour resection .The location was duodenum in 10 cases and jejunum in one case. In 10 cases of duodenal carcinomas the location was first part in one case, second part in 8 cases and third portion in 1case.

Therefore malignant tumour is most common in second part near ampulla of vater. Grossly 8 cases showed ulcerative lesion and in three cases elevated lesion.

Histologically 11 cases of adenocarcinoma were classified in to four cases well differentiated , three moderately differentiated and four poorly differentiated adenocarcinoma. Immunohistochemically ,cytokeratin (CK) was positive in all cases and P53 protein was recognized in 10 cases . The Ki 67 labeling index ranges from 40-55% with a mean 71%.

In three cases of metastatic carcinoma the origin was ovary in one case,pancrease one and gall bladder in one case. In three cases of malignant lymphoma all cases shows ulcerated tumour.All cases were located in the ileum ,one case is associated with gastric MALT lymphoma.The age incidence ranges from 69 to 79 years.,the male to female ratio is 1:2 . The clinical diagnosis was carcinoma in two cases and suspected lymphoma in one case.All the cases were diffuse large B cell lymphomas positive for CD15,CD 20 CD45 and negative for CK.

In the three cases of carcinoid tumours the age of the patient was 32,54 78 years male to female ratio is 2:1. All the cases were endoscopic mucosal resection .The size of carcinoid was 7mm,11mmand 15mm in diameter. Morphologically all the tumours are typically carcinoids showing small blue round cells with salt and pepper chromatin arrangend in ribbons and trabicular patterns .IHC shows all three positive for chromogrnine and synaptophysine.

In the two cases of GIST the patient was 67 and 69 years .These cases were resected tumours .Grossly the tumour was solid measuring 8x8x6cm.Histologically it consists of spindle shaped cells arranged in bundles and fascicles in sub-mucosal region .The out come depends on tumor size and mitotic activity.IHC of all the three tumours are positive for C kit and CD 34.

IV. Discussion

Large study of primary adenocarcinoma was performed by Dabaja et all they studied 217 cases of small intestine adenocarcinomas and found that the location is duodenum in 52% jejunum in 25%, ileum in 13% and not clear in 10%. In the present study of 11 cases of primary adenocarcinoma the common site duodenum and the second part of the duodenum was the most common site . Similar are described in WHO manuals .The preferential location may be because of the ampulla of Vater is in the site irritated by pancreatic juice and bile.The age of the patient with primary small intestinal carcinoma ranges from 45 -75 years with the mean age of 60 years .The male to female ratio was7:4 . There fore the primary small intestinal carcinoma is frequent in middle aged and old aged persons .This is correlating with previous epidemiological studies .The male preponderance is compatible with previous epidemiological study

In the present study immune reactivity of p53 protein was present in most carcinoma suggesting that p53 mutation was most common in primary carcinomas

In the present study three cases of malignant lymphoma were identified , all the cases were diffuse large B cell lymphomas Grody et all stated that B cell lymphomas accounts for 84% in gastrointestinal lymphomas .In intestinal lymphomas ,B cell lymphomas predominant over Tcell lymphomas .

T cell lymphomas ,Mantel cell lymphoma ,Burkett's lymphoma and Hodgkins lymphoma were not observed in present study

In the present study three cases of carcinoid tumors also called Neuroendocrine tumors (NET) .They are relatively rare in digestive organs.The incidence represented less than 0.1%of all small intestinal tumours .Carcinoid tumours are potentially malignant and malignant potential depends up on size and histomorphology .Size less than 20mm have low grade malignant potential and size more than 20mm have high grade malignant potential .In present study all the cases were less than 20mm in size .

In the present study two case of GIST were found ,the location is highest In stomach followed by colorectum and small intestine .Immunoreactivity is positive for c-Kit and CD34 is hall mark for GIST.

A study conducted by Fletcher et al the malignant potential of GIST depends up on tumour size and mitotic count .In low malignant risk group ,tumour size is less than 2cm and mitotic activity is less than 5 per 50 high power fields (HPF).In high risk groups tumour size is more than 10cm and mitotic activity is more than 10 per 50 high power fields .According to tumour size and mitotic count the malignant risk of present case was intermediate.

V. Conclusion

Most malignant tumours were Primary adenocarcinomas occurs with mean age group of 60years predominantly in males in duodenum. Followed by metastatic carcinomas,malignant lymphomas and carcinoid.

Figure no.(1)
Well differentiated adenocarcinoma scanner view

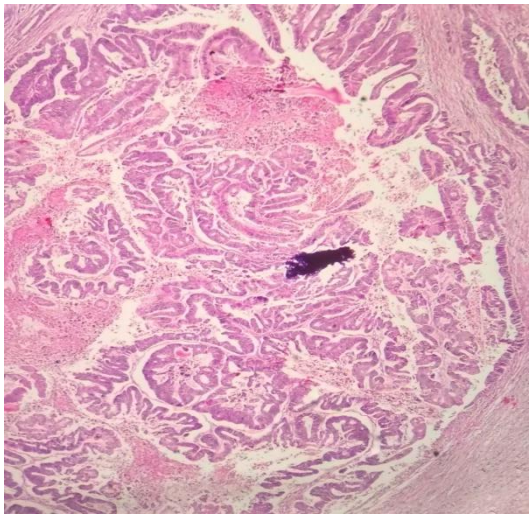


Figure no.(2)
Well differentiated adenocarcinoma low power view

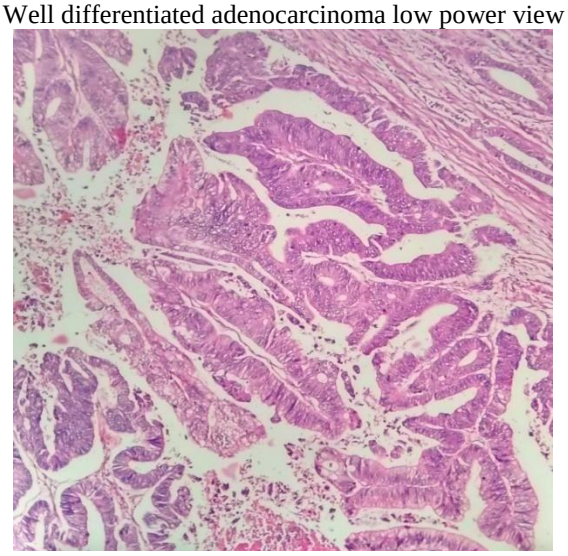


Figure no.(3): Showing pancytokeratin (AE1 – AE3) positive in well differentiated adenocarcinoma

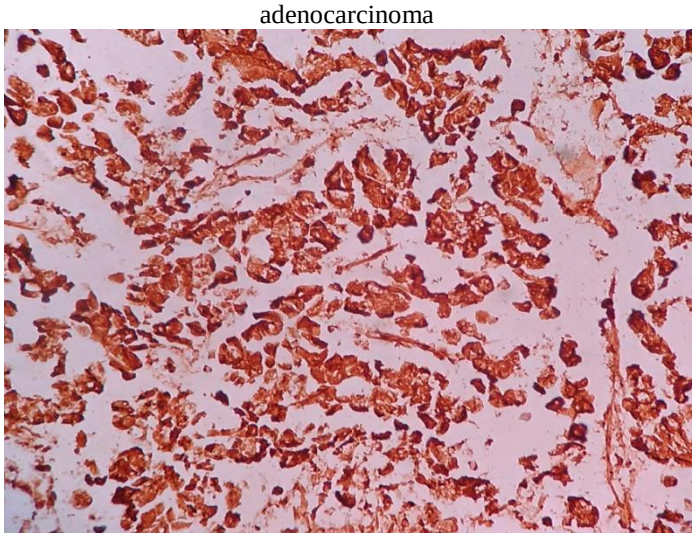


Figure no.(4) :GIST in scanner view

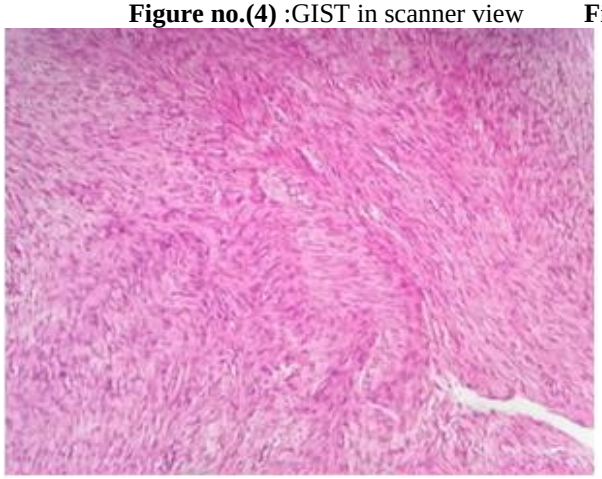


Figure no.(5): GIST showing mitotic activity

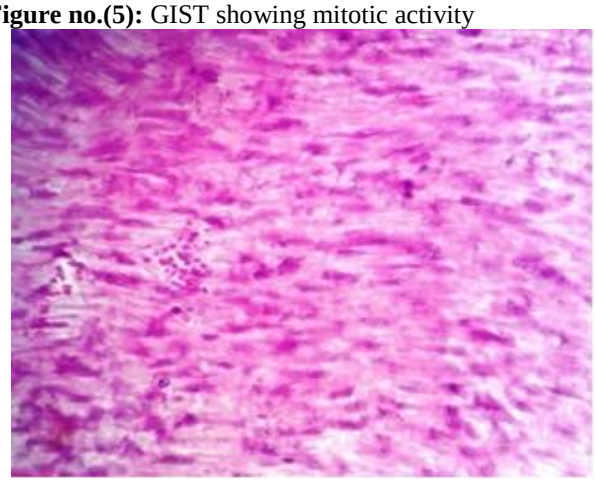


Figure no.(6): showing smooth muscle actin positivity in GIST

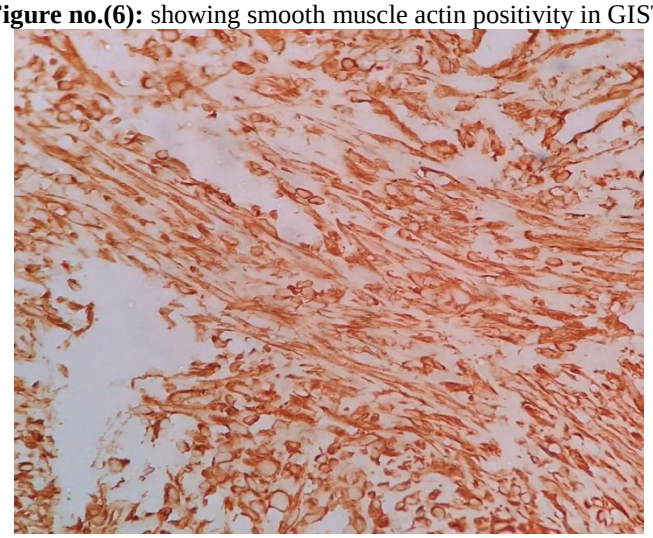
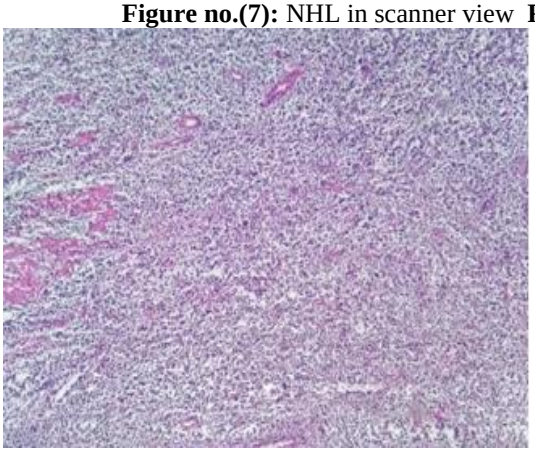


Figure no.(7): NHL in scanner view **Figure no.(8):**NHL in highpower view



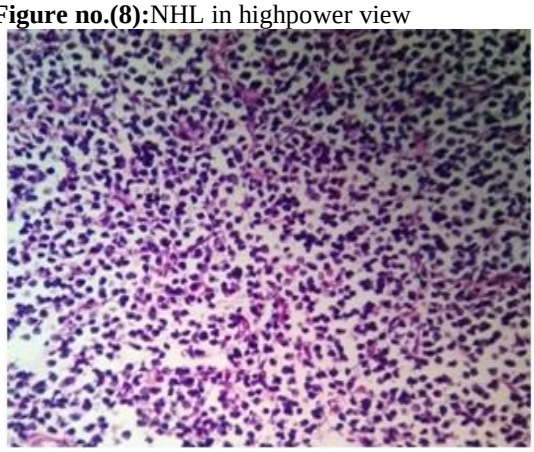
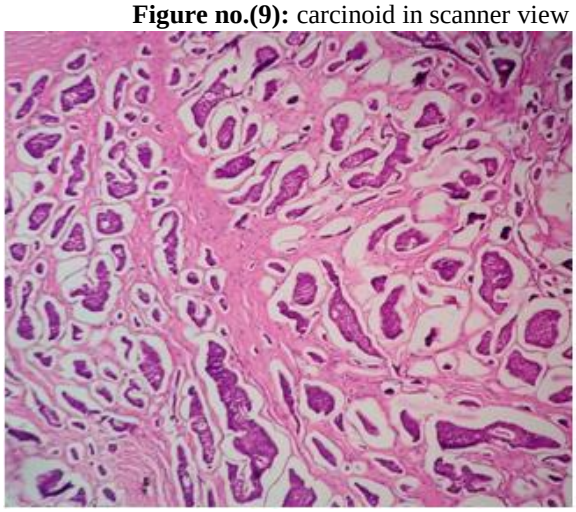


Figure no.(9): carcinoid in scanner view **Figure no.(10)** : carcinoid highpower view



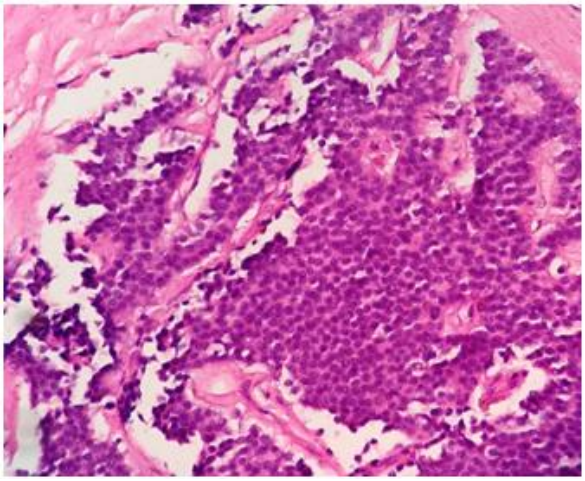
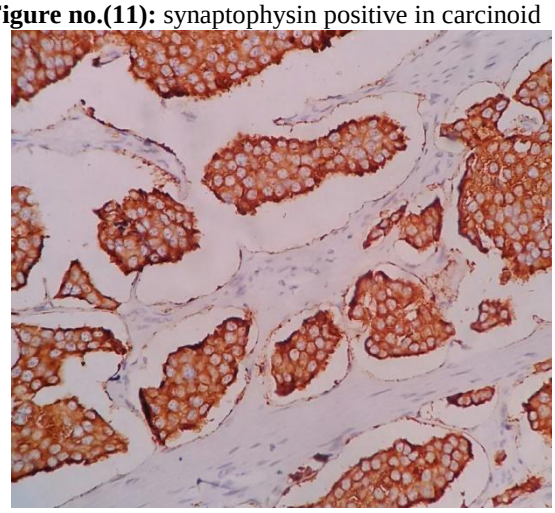
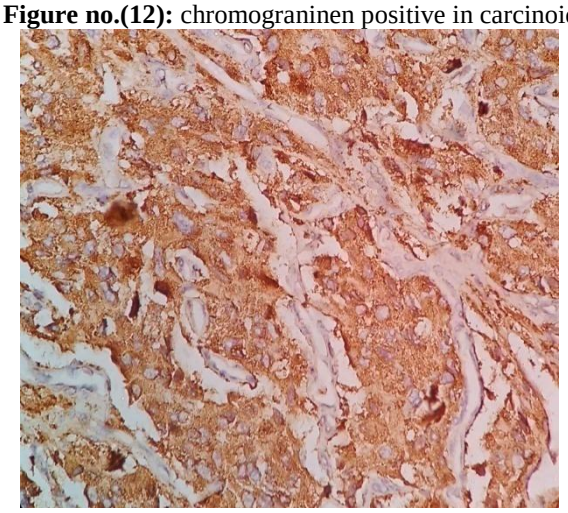


Figure no.(11): synaptophysin positive in carcinoid **Figure no.(12):** chromograninen positive in carcinoid





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