



Mesenchymal Mysteries of Gastrointestinal Tract Unveiled: A Clinicopathological Exploration

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Abstract

Introduction: Mesenchymal tumors of gastrointestinal tract(GIT) are rare tumors with overlapping histological features. Various mesenchymal tumors are seen in GIT with gastrointestinal stromal tumours(GIST) heading the list. The study was undertaken to evaluate the clinical, histomorphological and immunohistochemical features of mesenchymal tumors of GIT seen in our hospital.

Materials and Methods: This study was conducted over a period of thirty-one months (Jan2021-July2023) in a tertiary care centre hospital which included all those cases with histopathological diagnoses of mesenchymal tumors of GIT. Detail clinical, histomorphological and immunohistochemical features of these cases were analysed.

Results: Study comprised of 24cases (Males-15, Females-09) with age range of 33-81years, mean age being 56 years. Maximum cases,18(75%) were diagnosed as GIST followed by leiomyoma, 02(8.3%) cases. Leiomyosarcoma, lipoma, angiofibrolipoma and

malignant fibrous histiocytoma attributed each 1(4.16%)case. Among GIST, stomach was the commonest site, seen in 8(44.44%)cases. Spindle cell morphology was frequent type seen in 16(88.9%)cases. Sixteen, (88.9%) of 18 GIST cases were CD117 positive. Majority of GIST cases,12(66.66%) belonged to high risk group.

Discussion: The present study revealed GIST to be commonest mesenchymal tumor of GIT and spindle cell type was commonest microscopic type with maximum cases,(88.9%) being CD117 positive which corroborate with other studies.

Conclusion: This study enlightened on clinical, histopathological and immunohistochemical features of mesenchymal tumours of GIT which often cause diagnostic dilemma. However, correlation of histopathological findings with imaging and immunohistochemistry findings lead to accurate diagnosis, which can enable the clinicians to take optimal decision for therapeutic management.

Keywords: GIST, Mesenchymal Lesions, Clinicopathological, GIT,

Material and Method

This study was conducted in our hospital over a period of 31 months (Jan 2021 to July 2023). All cases with histopathological diagnosis of mesenchymal tumors of GIT were included. A detailed clinical and histopathological features of these cases were analyzed.

Results

This study comprised of 24 cases (Male-15, 62.5%, female-09, 37.5%) with histopathological diagnosis of mesenchymal tumors of GIT. Table-I depicts the different investigative procedures for obtaining various biopsy specimens.

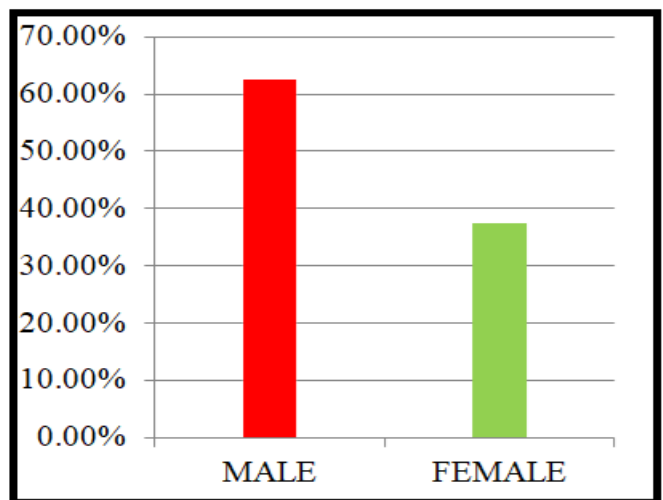
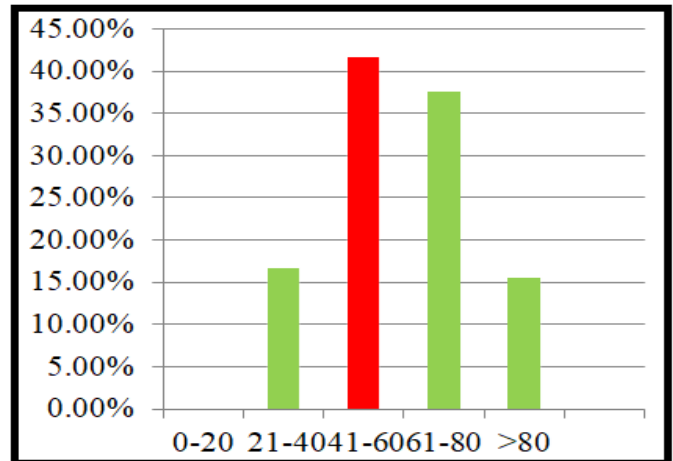
Table 1:

S No	Type of procedure	Number of cases (%)
1	Wide excision	20 (83.3%)
2	Small Biopsy	04 (16.7%)
	Total	24 (100%)

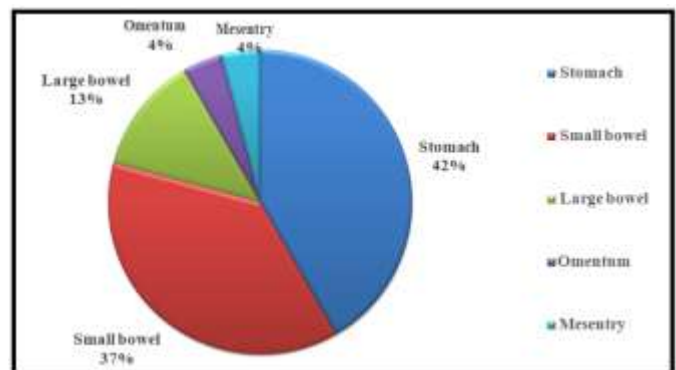
Chart I shows the age & sex wise distribution and Chart II shows site wise distribution of Mesenchymal tumors of GIT. The age range of these cases was found to be 33-81 years with the mean age of 56 years. Maximum number of patients, 10 (41.6%) out of 24 cases were found in 41 to 60 years age followed by 09 (37.5%) cases in 61-80 years. There were 04 (16.6%) cases in the age group of 21-40 years, 01 (4.16%) cases in the age group >80 years.

Age & Sex Wise Distribution Of Mesenchymal Tumors of Git

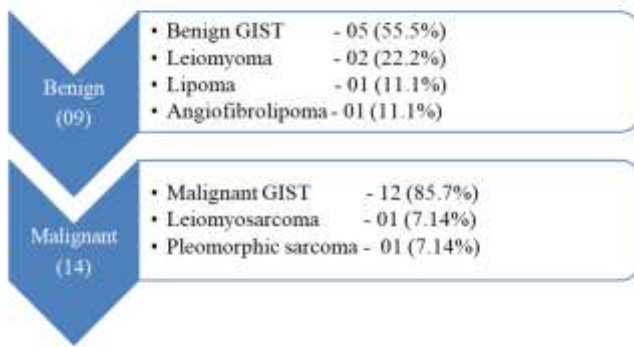
Chart-I & II



Site Wise Distribution of Mesenchymal Tumors of Git (N=24)



TYPES OF LESIONS



Out of these 24 cases of Mesenchymal tumors of GIT, maximum number, 18 (75%) revealed GIST followed by Leiomyoma 02 (8.33%), leiomyosarcoma, lipoma, angiofibrolipoma, pleomorphic sarcoma/malignant fibroushistiocytoma each seen in 1 (4.16%) cases. Among 18 GIST cases, mean age is 56 years, the most common site is found to be stomach and most frequent histological subtype is spindle type and majority of cases presented with tumor size of >10 cms and of high grade. (Table II)

Histomorphological Patterns of GIST

Table 2:

SITE	N-18	TUMOR SIZE	N-18	HISTOLOGICAL TYPE	N-18
STOMACH	08	>10cms	07	Spindle cell type	16
SMALL BOWEL	07	5-10cms	04	Mixed type	02
MESENTRY	01	<5cms	04	RISK CATEGORY	
OMENTUM	01	Cannot access (Small biopsy)	01	High risk	12
LARGE BOWEL	01			Low risk	04
				Cannot access	02
				IHC	
				CD117 +ve	10
				CD117 & DOG1 +ve	06
				CD117-ve, DOG1+ve	01
				No IHC Data	01

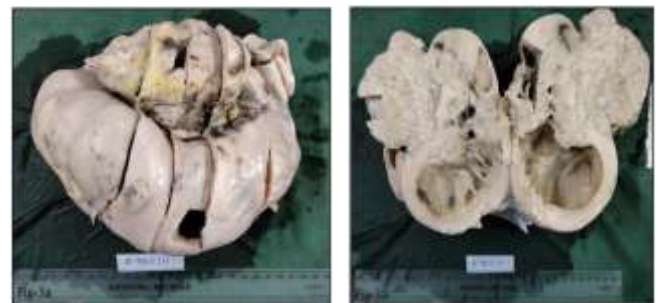
Gross Appearance of GIST



Gross (Fig-1a, Fig-1b) – Partially resected jejunum measuring 9.5cms in length. External surface shows a nodular growth on antimesenteric border measuring 2.8x2.5cms. Cut section shows a solid grey white tumor measuring 3.2x2.8x2.5cms with trabeculated pattern.

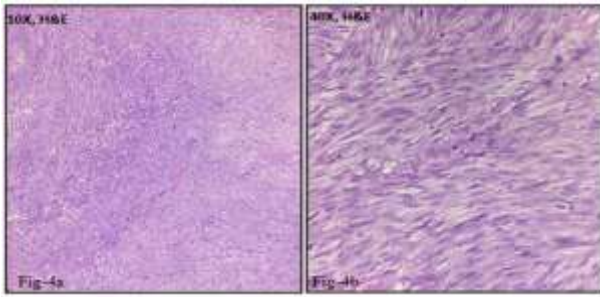


Gross (Fig-2a, Fig-2b) - Sleeve gastrectomy specimen contains segment of stomach (tube like) measuring 7.9cms and attached large grey brown solid, ovoid mass measuring 20.0x16.5x9.0cms. Cut section shows grey white, grey brown firm areas and multiple cystic spaces filled with clear fluid.



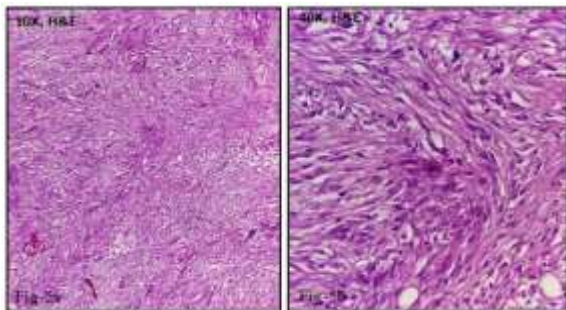
Gross (Fig-3a, Fig-3b) - Mass from small bowel mesentry contains single grey white solid cystic nodular mass measuring 20.0x16.0x14.0cms. Cut section shows solid and cystic spaces filled with mucoid and some filled with hemorrhagic and serous fluid. Solid area measuring 9.0x8.0x7.0cms, appears grey white.

Microscopic Appearance of Mesenchymal Lesions of GIT



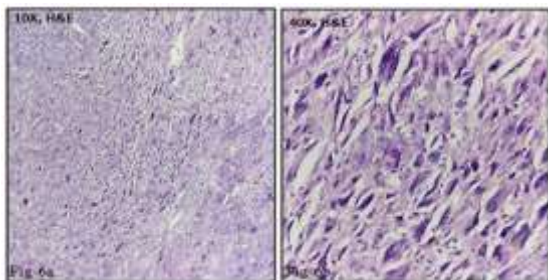
Spindle cell type- GIST (Fig-4a, Fig-4b)

Photomicrograph showing tumor is made up of spindle cells at places showing storiform pattern. These cells have scant to fair amount of eosinophilic cytoplasm showing spindloid nuclei. Brisk mitosis seen.



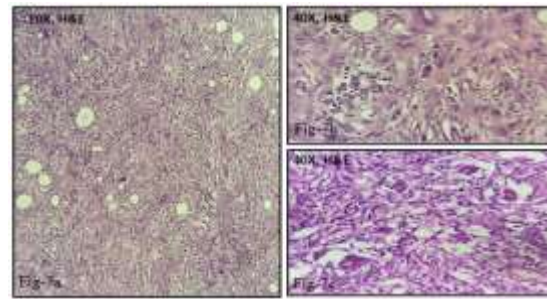
Mixed cell type- GIST (Fig-5a, Fig-5b)

Photomicrograph showing tumor is made up of round, oval, slender to plump spindle cells having scanty eosinophilic cytoplasm exhibiting moderately pleomorphic hyperchromatic vesicular nuclei, some showing conspicuous nucleoli. Mitosis seen.



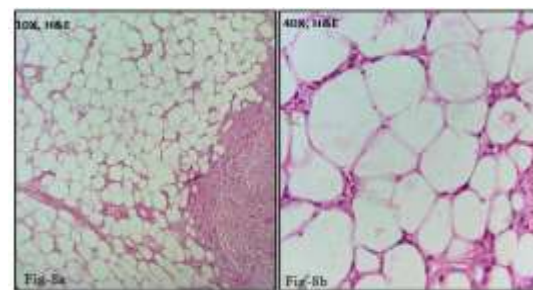
Leiomyosarcoma (Fig-6a, Fig-6b)

Photomicrograph showing pleomorphic spindle cells with abundant eosinophilic cytoplasm, nuclei are hyperchromatic and prominent nucleoli. Brisk mitotic seen.



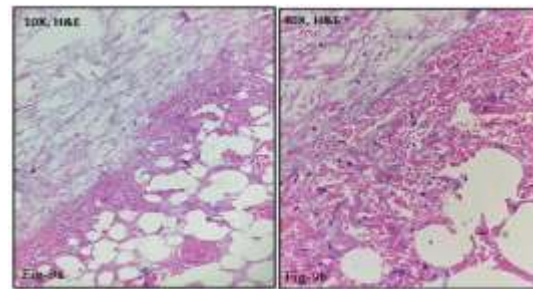
Pleomorphic sarcoma (Fig-7a, Fig-7b, Fig-7c)

Photomicrograph showing spindle cell tumor arranged in storiform pattern having elongated to plump pleomorphic nuclei, some having prominent nucleoli. Multinucleated giant cells seen. Brisk mitosis activity seen.



Lipoma (Fig-8a, Fig-8b)

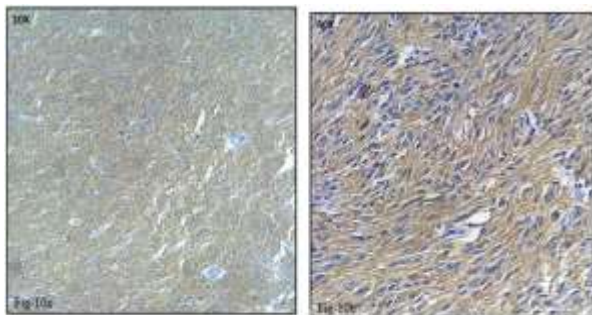
Photomicrograph showing tumors is made up of lobules, sheets of mature adipocytes separated by thin fibrous septae.



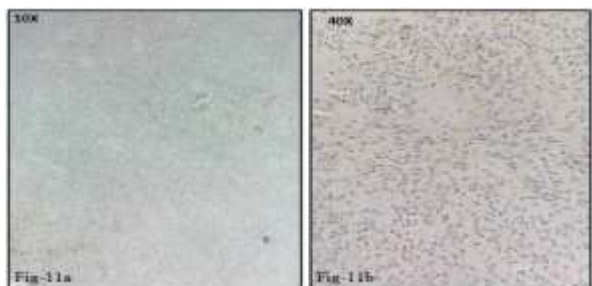
Angiofibrolipoma (Fig-9a, Fig-9b)

Photomicrograph showing tumor shows adipose tissue forming lobules separated by fibrous septae of variable thickness. Many thin and thick walled dilated, congested blood vessels seen.

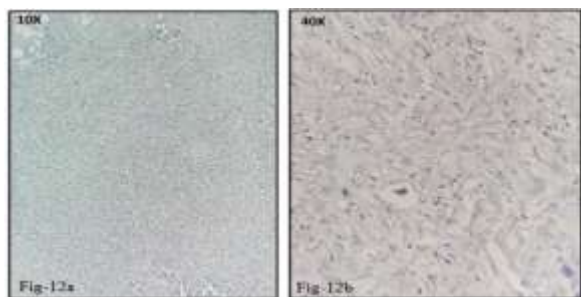
IHC - CD117 for GIST



CD 117 – Strong and diffuse positive (Fig 10a, Fig 10b)

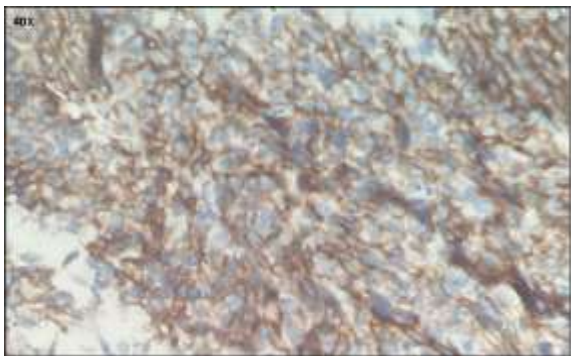


CD117 - Moderate and patchy positive (Fig11a, Fig 11b)



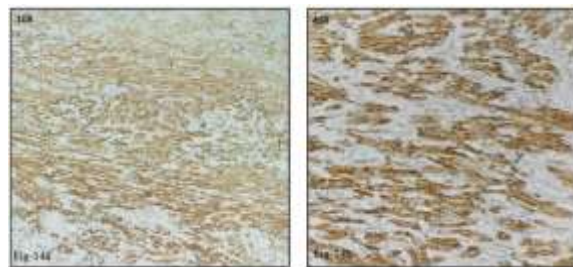
CD 117 - Negative (Fig 12a, Fig 12b)

IHC – DOG-1 for GIST



DOG-1 - Positive (Fig13)

IHC – SMA for Leiomyosarcoma



SMA - Positive (Fig14a, Fig 14b)

Discussion

In this study, Mesenchymal tumors were observed in age range of 33-81 years, with a mean age of 56 years which differs from study conducted by Nomenjanahary et al, who observed mesenchymal tumors with median age of 43.28 years.[5] The most common Mesenchymal tumor in our study was GIST 18 (75%) out of 24 cases, which is similar to other studies.[1] In our study stomach (42%) is the most common site followed by small bowel but Nomenjanahary et al had reported stomach followed by colon.[5] The present study revealed GIST to be the most common mesenchymal tumor of GIT and spindle cell type was the commonest microscopic type with maximum cases being CD117 positive which corroborate with other studies.[7] Jumniensuk et al has reported most of the cases are of low risk category, but in our study most of them are of high risk category.[6]

Conclusion

This study enlightened on clinical, histopathological and immunohistochemical features of mesenchymal tumors of Gastrointestinal tract which often cause diagnostic dilemma. However, correlation of histopathological findings with imaging, and immunohistochemistry findings lead to accurate diagnosis, which can enable the clinicians to take optimal decision for therapeutic management.

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