Volume : 5 | Issue : 10 | October 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Original Research Paper

Endoscopic Biopsy Interpretation of Upper Gastrointestinal Pathologies

Medical Science

KEYWORDS : Endoscopic biopsy, squamous cell carcinoma, adenocarcinoma, adenosquamous carcinoma, screening

Dr. Ritu Gumber MBBS — Pathology – Consultant Pathologist – Metropolis - Bangalore, Department of Pathology, MGM Medical College, Aurangabad, Maharashtra (Both authors)

Dr. Smita S. Mulay — M.D. Pathology- Professor & HOD, Department of Pathology, MGM Medical College, Aurangabad, Maharashtra (Both authors)

ABSTRACT

OBJECTIVES: *Endoscopy in combination with endoscopic biopsy plays an important role in the diagnosis of upper gastrointestinal tract (GIT) neoplasms and hence early management. The objective of this study is to find the spectrum of non-neoplastic and neoplastic conditions of upper GI lesions which are diagnosed on endoscopic biopsy and find association with age, sex and H. Pylori. Also to find out precancerous lesions so as to keep follow up of the patient.*

METHODS: *There were 150 upper GI biopsies received during the period of 2011-2013. The biopsies were taken under aseptic precautions in the Endoscopy department of MGM Medical College & Hospital. The biopsies were fixed in 10% formalin and stained with H & E & special stain Giemsa. The biopsies were reported later as either being non neoplastic or neoplastic with further typing of the tumour.*

RESULTS: *Among the 150 biopsies, 88 (58. 7%) biopsies were non neoplastic and 62 (41.3%) were neoplastic. The male female ratio was 1.17:1. The neoplastic lesions were most common in 6th -7th decade. The most common non neoplastic lesion was Chronic gastritis seen in 35 (23.3%) biopsies. The malignancies were squamous cell Carcinoma seen in 30 (20%) biopsies, Adenocarcinoma seen in 30 (20%) biopsies and Adenosquamous carcinoma in 2 (1.4%) biopsies. 10 (6.6%) biopsies were also reported as dysplasia and suspicious of malignancy. Adenocarcinomas were also typed being signet ring adenocarcinoma. The incidence of H. Pylori was found to be 23% in chronic gastritis biopsies.*

CONCLUSION: *Upper GI endoscopy and biopsy is a convenient tool for accurate objective assessment of patients with gastrointestinal symptoms and can be used as a tool for early diagnosis of neoplastic lesions of the upper GIT. Since the tissue bits may not be representative of the disease, the diagnosis could be missed hence complete assessment and follow up of the patient is necessary and at times repeat Biopsy is needful.*

INTRODUCTION:

Peptic ulcer disease (PUD), gastroesophageal reflux disease and cancers are leading UGI conditions and affect millions of people worldwide.[1] Dysphagia and dyspepsia are the most common GI symptoms for the patients to be referred to the Gastrointestinal OPD.

Dyspepsia is a common condition that is reported by up to 40% of the general population.[2] Upper gastrointestinal (GI) endoscopy is an established mode of investigation and treatment of a wide range of upper gastrointestinal conditions.[3] Endoscopy with biopsy and histological examination is more rewarding than endoscopy alone [4] as more accurate and detailed information results from histological examination of mucosal biopsy specimens.[5]

With the knowledge of pre-cancerous conditions and the increase in percentage of people who smoke cigarette and drink alcohol which aid in early development of cancer endoscopy helps in early detection and treatment in case they present with complaints suggesting of upper GI carcinoma. In this study, we evaluated the diagnostic potential of Upper GI Endoscopy and looked at the nature and frequency of different upper GI conditions, benign and malignant, diagnosed on biopsy obtained, in a random population of patients referred primarily with GI complaints.

This study is an attempt to study the frequency of different lesions in the upper GI tract detected on endoscopic biopsy. It also emphasizes that the biopsy material sometimes may not be sufficient to provide adequate diagnosis, hence correlation with biopsy specimen may be required.

MATERIALS AND METHOD:

The present study included 150 biopsies from patients undergoing upper GI endoscopy in the Endoscopic Unit of MGM Medical College and Hospital during the study period, later histopathological diagnosis was made. The biopsies were taken under all aseptic precautions after the consent from the patient. Their clinical data was recorded including the age, sex and duration of complaints, any personal habits and endoscopic finding. The tissue bits received ranged from 2-4. Later on Haematoxylin and Eosin staining along with Giemsa were done in the pathology department of MGM Medical College and hospital. The neoplastic lesions were diagnosed as per WHO Classification of tumours. The presence of any associated/ predisposing lesions such as ulcers, Barret's oesophagus, H. Pylori, etc were also noted. The clinical & histopathological data so obtained were statistically analysed using—Microsoft Excel‖ software.

OBSERVATION:

Number of cases undergoing upper gastrointestinal endoscopy was 150, out of these maximum cases were found in 6th decade (30.0%) and minimum in 2nd decade (2.8%).In the present study males contributed 81 cases (54%) and females contributed 69 cases (46%). Male to female ratio in the study was 1.17:1. (Graph 1)

Out of 150 cases the major complaints were dyspepsia in 49 cases (21.4%), dysphagia in 65 cases (28.3%) followed by pain in abdomen in 29 cases (12.6%) and jaundice in 20 cases (8.6%). (Graph 2). The endoscopy findings showed presence of growth in 77 cases (51.3%) followed by ulcer in 37 cases (24.7%). 12 cases (8.0%) showed presence of erosions followed by stricture in 19 cases (12.7%) and inflammation in 5 cases (3.3%). (Graph 3)

In the present prospective study the commonest lesion encountered histologically was chronic gastritis in 35 (23.3%) cases. Amongst remaining benign lesion chronic duodenitis in 4 (2.6%) cases, chronic esophagitis in 2 (1.4%) cases, eosinophilic esophagitis in 1 (0.7%) cases and infection at

Volume : 5 | Issue : 10 | October 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

ampulla in 10 (6.5%) cases. Malignancy was found in total of 62 cases of which squamous cell carcinoma was noticed in 30 (20.0%) cases, adenocarcinoma in 30 (20.0%) cases, adenosquamous carcinoma in 2 (1.4%). Suspicious of malignancy was found in 5 cases (3.3%), dysplasia in 5 cases (3.3%) and no evidence of any pathology was seen in 21 cases (14.0%). Other findings seen were pseudoeoitheliomatous hyperplasia in 1 case (0.7%), Barret's Esopahgus in 2 cases (1.4%) and hyperplastic polyp in 2 cases (1.4%). (Table 1)

In the study most of the lesions were benign with growth as the endoscopic finding in 30 (20%) cases and least seen was inflammation of the mucosa was seen in 5 (3.3%) cases and the majority of the malignant lesions also showed growth on the endoscopy in 47 (31.3%) cases and the least observed was strictures in malignant cases in 7 (4.7%) cases. (graph 4)

In present study 62 cases were diagnosed with carcinoma and the majority of the cases showing were from oesophagus with histological diagnosis of squamous cell carcinoma, i.e, 30 cases and the rest were adeno carcinomas of various sites. (graph 5)

Out of the 35 biopsies reported to have chronic gastritis showed presence of H. Pylori in 8 (23%) cases and the rest, i.e, 27 (77%) biopsies were negative for H. Pylori. (graph 6)

DISCUSSION:

Biopsy sampling of gastric mucosa at endoscopy provides useful information that helps in the diagnosis of various lesions.[6] The study was conducted from November 2006 to July 2008 comprised of one hundred upper gastrointestinal endoscopic biopsies, of which 45 (30%) cases were esophageal biopsies, 62 (41.3%) were gastric biopsies, 9 cases (9%) were duodenal biopsies, 9(9%) cases were Oesophagogastric Junction biopsies and 25 (16.7%) biopsies were from Ampulla of Vater. In the present study most common site for upper gastrointestinal endoscopic biopsy is from the stomach, followed by esophagus, ampulla of Vater, duodenum and oesophagogastric junction.

Of the 150 patients with upper gastrointestinal tract endoscopic biopsies, 46% were females and 54% were males. The male: female ratio was 1.17: 1. This gender ratio favoring males could be reflective of the fact that males are exposed to more risk factors than females and gastrointestinal malignancies are more common in males according to JC Paymaster et al[7].

In the present study there was a predominance of upper gastrointestinal tract disease between the age groups of 25-90 yrs, also proved by Rashmi et al [8] and Nafees ei al.[9] The youngest patient was 25 yrs old and the oldest patient was 89yrs old. The age related difference could be due to variation in the risk factors among the different age groups.

Distribution of esophageal lesions:

Of the total 45 patients with esophageal endoscopies neoplastic (68.9%) lesions were more compared to the non - neoplastic lesions (31.1%). The majority of the non neoplastic lesions were chronic nonspecific esophagitis which was also shown by the study conducted by Shennak MM et al [10].

lesions most commonly occurred in the middle third in our study which accounted for 32 patients (71.2%). The next most common site was upper third with 7 patients (15.5%) and 6 patients (13.3%) had it in the lower third. This was also confirmed by another Indian study done by Rumana et al [11].

In our study we found most of the cases of esophageal malignancy as SCC. SCC of esophagus endoscopically mostly presented as proliferative and ulceroproliferative lesions. Of all the 30 cases of SCC esophageal carcinoma, 7 cases (23.3%) were moderately differentiated; 16 cases (53.3%) were well differentiated SCC, and 1 case (3.3%) was diagnosed as poorly differentiated SCC. Also we had 4 cases (13.3%) where the grade could not reported. We also reported 2 cases of (1.3%) Barrets esophagus.

We also received 9 cases (6%) from Oesophageal – Gastric Junction, of which 7 cases (77.8%) showed malignant features and the rest 2 cases (22.2%) were non-malignant. On further typing the malignant cases 5 cases (71.5%) were reported as adenocarcinoma and rest 2 cases (28.5%) were reported as adenosquamous carcinoma.

Distribution of gastric lesions:

Our study had majority 62 cases (41.3%) of the upper GIT endoscopic biopsies were carried from stomach Of the total 62 patients biopsied for gastric pathology, 44 patients (70.9%) had non neoplastic lesions and 18 patients (29.1%) had neoplastic lesions. Among the non neoplastic lesions of the stomach, chronic gastritis was a leading diagnosis with 35 cases (56%). Also when Giemsa was done for the cases of chronic gastritis 8 cases (23%) were positive for the same. Our study correlated with study done by Rashmi K. et al.[8]

The most biopsied sites in case of stomach neoplasm was pylorus and antrum in 10 cases (55.5%) followed by body with fundus with 7 cases (39%) and 1 case from cardia (5.5%). Such similar site preponderance in case of gastric biopsies was seen in study carried out by Vidyavati et al.[12]

In our study, with respect to differentiation of gastric carcinoma, moderately differentiated (50%) adenocarcinoma was slightly more common than well differentiated (22%) adenocarcinoma, also the no of poorly differentiated cases were (5.6%). Also in 4 cases (22.2%) the grade could not be reported. Our study included 18 cases of adenocarcinoma of stomach 14 cases (77.8%) showed presence of adenocarcinoma and rest 4 cases showed signet cells and mucinous cells each (11.1%). Study conducted by Vidyawati K et al [12] showed incidence of signet ring carcinoma as 8.5%, close approximation to our findings.

Distribution of duodenal lesions:

Our study had total 9 biopsies from duodenum (6.0%) of which neoplasm was reported in 2 cases (22.2%) and chronic duodenitis was reported in 4 cases (44.4%) and the rest showed no reportable pathology. Most of the biopsies 6 cases (66.7%) were obtained from 1st part of duodenum and rest 3 cases from 2nd part of duodenum (33.3%).

Our study had 25 cases involving the ampulla of Vater, of which 4 cases (16 %) were malignant rest 21 cases (84%) were non-malignant.

Repeat biopsies asked:

It was seen in our study that repeat biopsies were asked because either they showed no pathology or they showed dysplasia or the type of cancer could not be pointed. A total of 21 (14%) biopsies were asked for a repeat sample. We had 4 cases of which repeat biopsies were received. Out of which 2 cases the diagnosis did not change. In other 2 cases, one was diagnosed as dysplastic lesion and was later reported as suspicious of malignancy. 2nd case

was initially reported as suspicious of malignancy and on repeat biopsy was reported as squamous cell carcinoma-Grade I. The reasons for the same could be that the site of the lesion was missed on endoscopy or the tissue was small that the diagnosis could not be made. It is a known fact that biopsy offers only 55% of the overall pathology, that is seen 100% in the resected specimen. Thus, interpretation on the biopsy specimen could be challenging.

Correlation with resected Specimens:

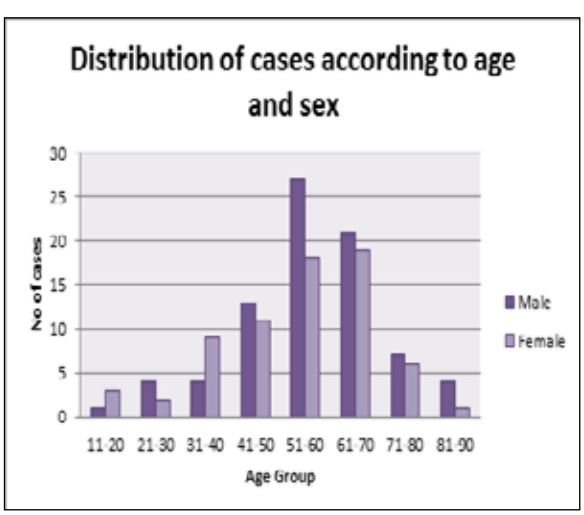
Since most of the biopsies taken were on OPD procedure, the follow up of patients was difficult. Out of the total biopsies, we have just received 3 resected specimens. The 1st case was reported as suggestive of malignancy which on resected specimen was diagnosed as Poorly Differentiated carcinoma Stomach with metastasis in the lymph nodes. The 2nd case was reported as having Squamous cell carcinoma of Esophagus and was confirmed on resected specimen. The 3rd case was interesting as on its initial biopsy it was reported to have no significant pathology, on its later biopsy still diagnosis was inferred as positive for malignancy, later on the resected specimen only we could confirm it to have adeno carcinoma of the stomach. Thus, again proving that reporting on a biopsy is a double edged sword where the diagnosis has to still be confirmed on resected specimen.

CONCLUSION:

In our study, the commonest site for upper endoscopic biopsy was from the stomach (41.3%) with 70.9% non-neoplastic and 29.1% neoplastic lesions. Most common neoplasm of the stomach was adenocarcinoma. The second most common site was esophagus with 45 cases. The most common endoscopic finding was growth in 51.3% for which biopsy was taken, of which 20.0% were diagnosed as benign conditions and 31.3% were reported as malignant lesions. Endoscopic biopsy is easy and helps in early diagnosis of malignant lesions. Since the tissue is less on biopsy and under reporting could be a possibility, also the lesion may not be hit on the endoscopy; hence the utility could be a debatable question.

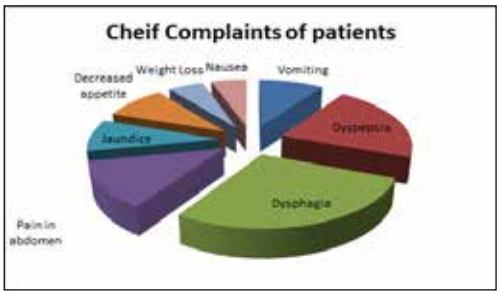
TABELS AND GRAPHS:

Graph 1:



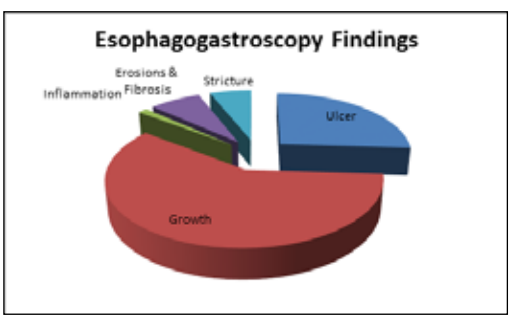
Graph 1: Age & Sex distribution of patients undergoing upper gastrointestinal endoscopy inMGM Hospital, Au rangabad in years 2011-13.

Graph 2:



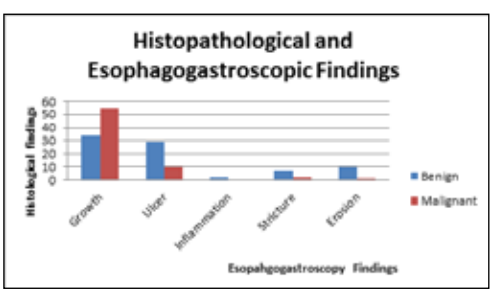
Graph 2: Distribution of patients according to chief complaints undergoing upper gastrointestinal endoscopy in MGM Hospital, Aurangabad in years 2011-13

Graph 3:



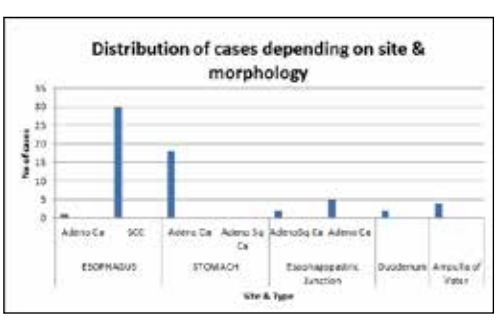
Graph 3: Distribution of patients according to Esophagogastroscopy findings undergoing upper gastrointestinal endoscopy in MGM Hospital, Aurangabad in years 2011-13.

Graph 4:



Graph 4: Comparison of esophagogastroscopy findings and histological findings in patients attending Esophagogastroscopy Findings in MGM Hospital, Aurangabad in years 2011-13.

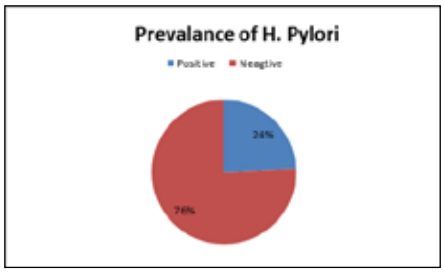
Graph 5:



Graph 5: Site wise distribution of biopsies diagnosed as carcinoma of patients undergoing upper gastrointestinal endoscopy in MGM Hospital, Aurangabad in years 2011-1

Volume : 5 | Issue : 10 | October 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Graph 6:



Graph 6: Prevalence of H. Pylori in Biopsies of Chronic Gastritis in patients undergoing Esophagogastroscopy in MGM Hospital, Aurangabad in years 2011-2013.

Table 1:

Histopathological Findings	No of Cases	Percentage (%)
BENIGN:		
• Chronic Gastritis	35	23.3%
• Chronic Duodenitis	4	2.6%
• Chronic Esophagitis	2	1.4%
• Eosinophilic Esophagitis	1	0.7%
• Infection of Ampulla of Vater	10	6.5%
MALIGNANT:		
• Adenocarcinoma	30	20.0%
• Squamous Cell Carcinoma	30	20.0%
• Adenosquamous Carcinoma	2	1.4%
Suspicious of Malignancy	5	3.3%
No evidence of any Pathology	21	14.0%
Dysplasia	5	3.3%
OTHERS:		
• Psuedoepitheliomatous Hyperplasia	1	0.7%
• Barrets Esophagus	2	1.4%
• Hyperplastic Polyp	2	1.4%
Total	150	100%

Table 1: Histopathological diagnosis of the biopsies in MGM Hospital, Aurangabad in years 2011-2013.

FIGURES:

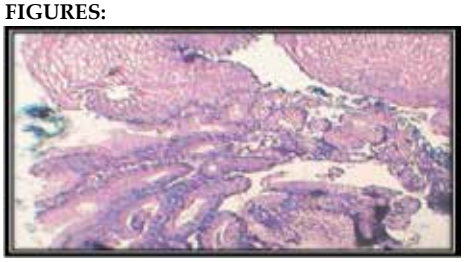


Fig 1: Photomicrograph of Barret's esophagus showing intestinal metaplasia
(H & E- 10 X)

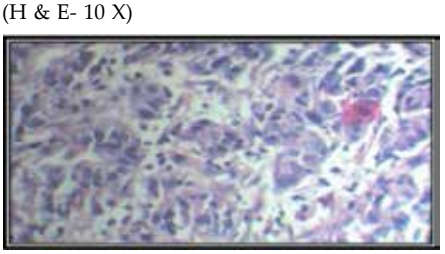


Fig 2: Photomicrograph of well differentiated adenocarcinoma showing glandular pattern
(H & E-40X)

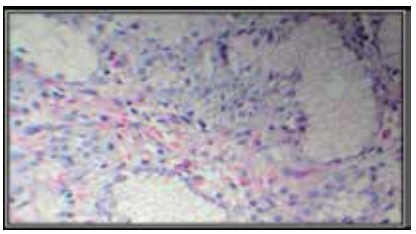


Fig 3: Photomicrograph of mucinous carcinoma showing pleomorphic cells with hyperchromatic nuclei surrounded by mucinous background
(H& E- 40 X)

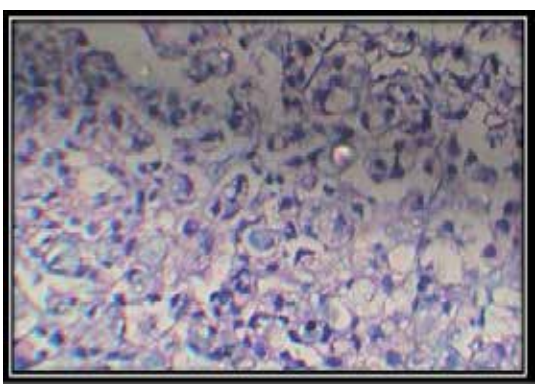


Fig 4: Photomicrograph of signet ring cell adenocarcinoma showing irregular atypical glands lined by pleomorphic cells and signet cells
(H & E-40X)

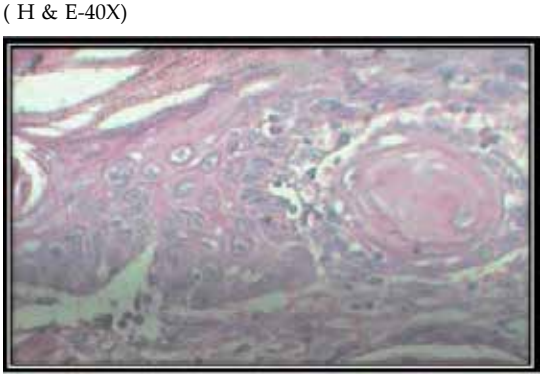


Fig 5: Photomicrograph of squamous cell carcinoma showing sheets of malignant cells along with keratin pearls
(H & E-40 X)

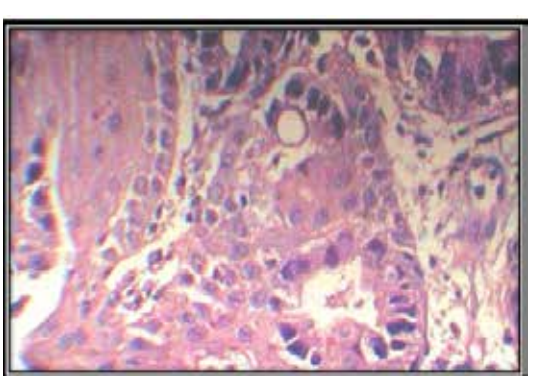


Fig 6: Photomicrograph of adenosquamous carcinoma showing dysplastic glands along with islands of squamous cells
(H& E – 40 X)

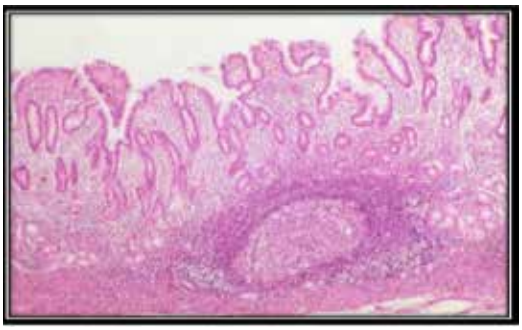


Fig 7: Photomicrograph of gastritis showing inflammatory infiltrate in mucosa and submucosa
(H& E- 10 X)

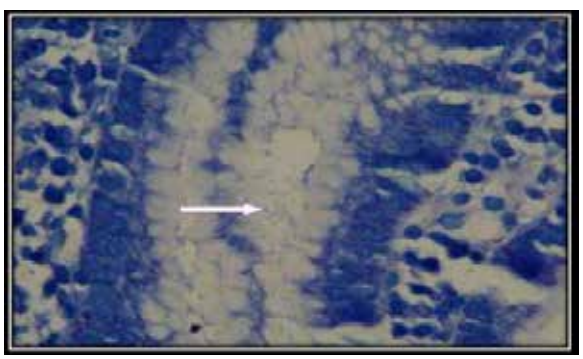


Fig 8: Photomicrograph showing Curved bacilli of H. Pylori
(Giemsa 40x)

REFERENCES:

1. Agbakwuru E.A, Fatusi A.O, Ndububa D.A, Alatise O.I, Arigbabu O.A, Akinola D.O. Pattern and validity of clinical diagnosis of upper gastrointestinal diseases in south-west Nigeria. African Health Sciences 2006; 6(2):98-103.
2. A. B. R. Thomson, A. N. Barkun, D. Armstrong, N. Chiba, R. J. White, S. Daniels, et al. The prevalence of clinically significant endoscopic findings in primary care patients with uninvestigated dyspepsia: the Canadian Adult Dyspepsia Empiric Treatment –Prompt Endoscopy (CADET–PE) study. Aliment Pharmacol Ther 2003; 17: 1481–1491.
3. Shaheen A. Bhatty, Naiz A. Shaikh, Naila Zahir, Syed Shakil Akhter, Aneel Sham Vaswani and Hamid Manzoor. Histopathological Spectrum of Upper Gastrointestinal Endoscopies. Medical Channel 2009; 15(4):11-14.
4. Nowshad Khan, Ghulam Shabbir, Muham. Upper Gastrointestinal Endoscopic Assessment of Patients Presenting With Dyspepsia. JPMI 2007; 21(3):212-216.
5. J. Kreuning, F. T. B Osman, G. Kuiper, A. M. v.d. Wal, J. Lindeman. Gastric and duodenal mucosa in 'healthy' individuals an endoscopic and histopathological study of 50 volunteers. Journal of Clinical Pathology, 1978, 31, 69-77.
6. Sandhya Panjeta Gulia, Madhusudan Chaudhury, Naseem Noorunnisa,C D Balakrishnan, K. Balagurunathan.Interpretation of Upper GastroIntestinal Tract Endoscopic Mucosal Biopsies – A Study Conducted In Teaching Hospital In Puducherry, India. Int J Med Health Sci. July 2012; 1(3): 17-24.
7. Paymaster JC, Sanghvi LD, Ganghadaran P. Cancer of gastrointestinal tract in western India. Cancer 1968; 21: 279-87.
8. Rashmi Krishnappa, MS Horekerappa, Ali Karar, Gouri Mangala. A study of histopathological spectrum of upper gastrointestinal tract endoscopic biopsies. Int J Med Resi Health Sci 2013; 2(3): 418-424.
9. Nafees A Qureshi, Michael T Hallissey and John W Fielding. Outcome of index upper gastrointestinal endoscopy in patients presenting with dysphagia in a tertiary care hospital-A 10 years review. BMC Gastroenterology 2007; 43(7): 1-4.
10. Shennak MM, Tarawneh MS, Al-Sheik. Upper gastrointestinal diseases in symptomatic Jordanians: A prospective endoscopic study. Ann Saudi Med 1997; 17(4): 471-74.
11. Rumana M, Khan AR, Khurshid N. The changing pattern of oesophagogastric cancer in Kashmir. JK-Practitioner.2005;12(4): 189- 92.
12. Vidyawati K, M L Harendrakumar, Y C Lakshmana Kumar. Correlation of endoscopic brush cytologywith biopsy in diagnosis of upper gastrointestinal neoplasms. IJPM 2008; 51(4): 489-492