International Journal of Research in Medical Sciences
Prasaad PR et al. Int J Res Med Sci. 2016 Aug;4(8):3407-3412
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20162302

Research Article

Histopathological spectrum of gastrointestinal lesions - an experience in a tertiary care centre in South India

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Received: 13 June 2016
Revised: 14 June 2016
Accepted: 04 July 2016

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ABSTRACT

Background: Gastrointestinal biopsies are the major group specimens received in the surgical pathology department. This includes endoscopic biopsies from gastric and duodenal mucosa, appendicectomies, cholecystectomies and colonoscopic biopsies. This study aims at identifying the different histopathological lesions in these specimens.
Methods: The study was a retrospective study conducted in the Department of Pathology, Sree Balaji Medical College and Hospital, Chennai, Tamil Nadu, India from January 2013-January 2014. 194 gastrointestinal biopsies were included in this study. These biopsies were fixed in 10% buffered formalin and routinely processed and paraffin embedded sections were taken and stained with Hematoxylin and Eosin. The slides were interpreted and the statistical analysis of the data obtained was done.
Results: The most common specimen received was appendix (39%). The next common specimen was endoscopic gastric mucosal biopsies (20%). We had 25 cholecystectomy specimens (13%) and 17 fistulous tract excisions (9%). The other specimens studied are 20 colonoscopic biopsies (10%), six esophageal mucosal biopsies (4%), four vocal cord biopsies (2%), two liver biopsies (1%), two tonsillar biopsies (1%), and one biopsy from pharynx (1%).
Conclusions: Histopathological analysis of gastrointestinal lesions aids the clinicians for follow up and specific treatment. This study gives an overview of the different histopathological specimens received in the surgical pathology department and analyses the varied histomorphological diagnosis given for these specimens.

Keywords: Gastrointestinal biopsy, Xanthoma, Adenomas

INTRODUCTION

Gastrointestinal biopsies constitute a major group of specimens received in the surgical pathology department in a tertiary care hospital. This includes endoscopic biopsies from gastric and duodenal mucosa, appendicectomies, cholecystectomies and colonoscopic biopsies, colectomies etc.[1] This study aims at identifying the different histopathological lesions in these specimens. Endoscopy and colonoscopy guided biopsies are the preferred forms of investigation in the surgical department which provides critical information for diagnosis and hence treatment.[2] Histopathological diagnosis is essential in cases of polypoid lesions, ulcerative lesions and in dubious lesions on endoscopy.[3]

METHODS

Biopsies from the gastrointestinal sites namely esophagus, pharynx, stomach, duodenum, liver, small intestine, colon, rectum and anal canal are included in the study. The study period was from January 2013- January 2014. It was a retrospective study conducted in the department of Pathology, Sree Balaji Medical College and Hospital, Chennai, Tamilnadu. These included small endoscopic biopsies from esophagus, stomach, duodenum and colonoscopic biopsies of colon lesions as well as rectal lesions. Also, resected specimens of colon and stomach were also included and correlated with endoscopic biopsies if previously received. Wedge biopsies from liver and gall bladder specimens are also

included in the study. These biopsies are fixed in 10% buffered formalin and routinely processed and paraffin embedded sections are taken and stained with Hematoxylin and Eosin. Special stains like Giemsa, Acid Fast and Periodic Acid Schiff stains are used as and when necessary. Immunohistochemistry is performed for dubious cases and diagnosis given.

The clinicopathological details like the age and gender of the patient, clinical complaints were also studied along with histo-morphological analysis.

RESULTS

194 gastrointestinal biopsies were included in this study. 55% of biopsies were from males and 45% of biopsies were from females (Figure 1).

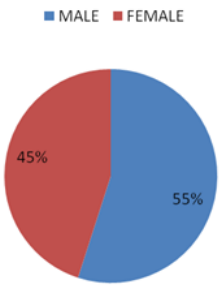

Figure 1: Gender distribution.

The age distribution of these specimens is shown in (Figure 2-6). The most common specimen received was appendix which accounted for 76 biopsies out of the total 194 cases included (39%). The next common specimen received was endoscopic biopsy from the gastric mucosa or duodenal mucosa which accounted for 39 cases (20%). One subtotal gastrectomy was also included in the study.

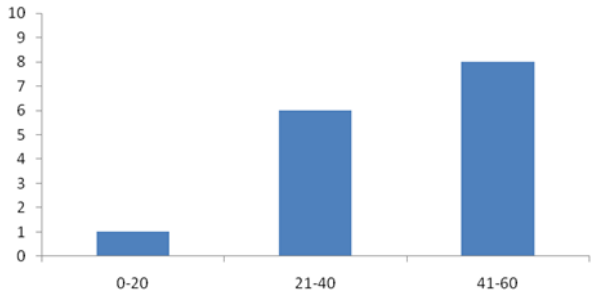

Figure 2: Age distribution of anal lesions.

We had 25 cholecystectomy specimens (13%) and 17 fistulous tract excisions (9%). The other specimens studied are 20 colonoscopic biopsies (10%), six esophageal mucosal biopsies (4%), four vocal cord biopsies (2%), two liver biopsies (1%), two tonsillar biopsies (1%), and one biopsy from pharynx (1%). Among the 76 appendix biopsies studied, 62 cases (82%) were reported as acute appendicitis which correlated with clinical diagnosis in all cases.

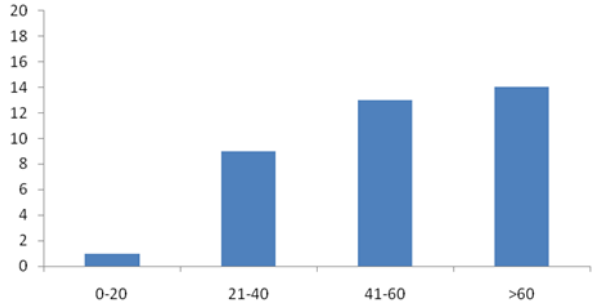

Figure 3: Age distribution of gastric lesions.

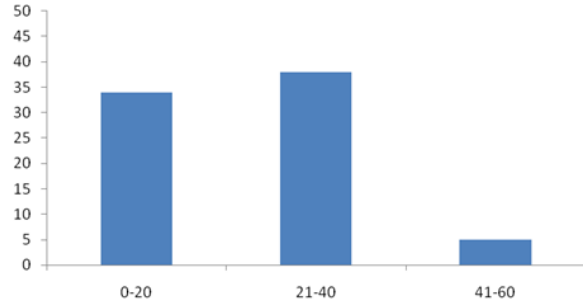

Figure 4: Age distribution of appendicular lesions.

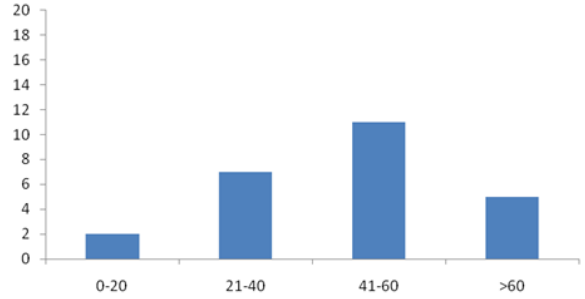

Figure 5: Age distribution of gall bladder lesions.

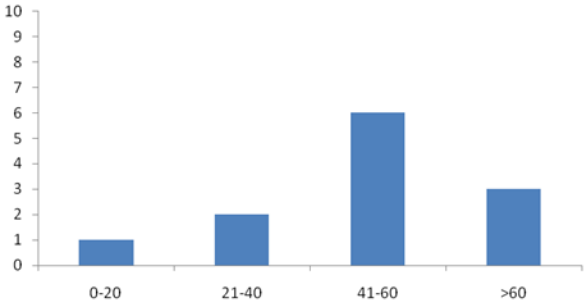

Figure 6: Age distribution of colonic biopsies.

The other diagnoses which were reported in the appendix specimens are subacute appendicitis in five cases (7%), obliterative appendicitis in one case (1%), appendicitis with periappendiceal abscess in six cases (8%) and acute

appendicitis with enterobius vermicularis in one case (1%). One of the appendix biopsies had mucinous cystadenoma in addition to acute appendicitis (1%) (Table 1).

Table 1: Distribution of pathology in appendix n=76.

Diagnosis	Percentage
Acute appendicitis	82
Sub-acute appendicitis	7
Obliterative appendicits	1
Acute appendicitis with peri-appendiceal abscess	8
Enterobius vermicularis	1
Mucinous cystadenoma	1

The gastric biopsies retrieved through endoscopic biopsy were both from the antrum or pylorus and occasionally from fundus of the stomach. The most common diagnosis given in gastric biopsy was chronic gastritis (61%). Among these cases, H. Pylori was positive in 61% of cases and negative in 39% of cases detected using the Giemsa stain (Figure 7).

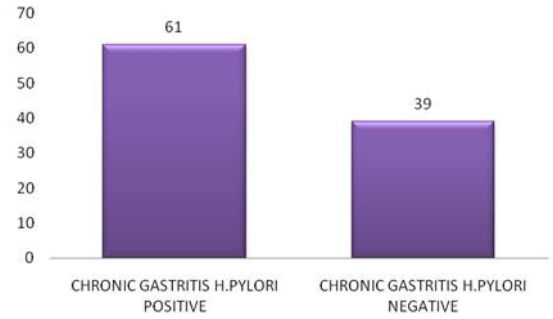

Figure 7: Prevalence off *H. pylori* in gastric biopsies.

Two of the cases showed intestinal metaplasia with chronic gastritis. One of the gastric mucosal biopsies showed xanthelasma in the submucosal (Figure 8).

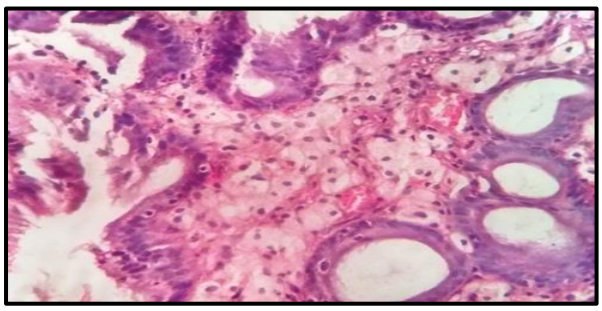

Figure 8: Xanthelasma in gastric mucosa.

Polyp in the gastric mucosa was observed in seven cases. The most common polyp reported was hyperplastic polyp in 10% of cases. The other subtypes of polyps seen were inflammatory polyps (2.5%) and adenomatous polyps (5%).

Epithelial abnormalities like dysplasia of the gastric mucosa were seen in six cases (15%). These included severe dysplasia in one case (20%), adenomatous polyp of villoglandular type in two cases (33%) with coexisting adenocarcinoma in one of the cases. Adenocarcinoma was reported in four cases (66%) (Figure 9 and 10).

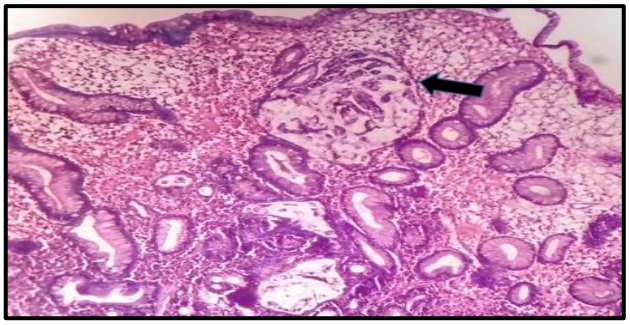

Figure 9: Adenocarcinoma-mucin secreting in endoscopic gastric biopsy (arrow-foci of CA).

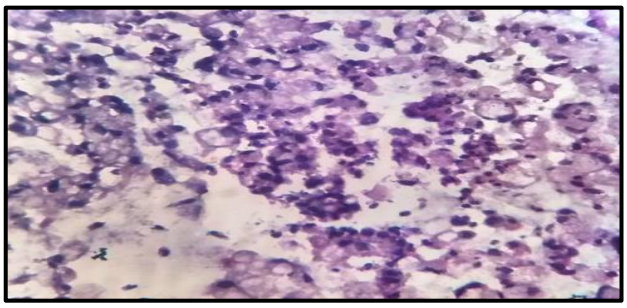

Figure 10: Signet ring cell adenocarcinoma in gastric mucosa.

Among the duodenal biopsies received the most common diagnosis made was non- specific chronic duodenitis. One of the cases showed a hyperplastic polyp in addition to duodenitis. Out of the 25 cholecystectomies studied, four cases showed only chronic cholecystitis with no calculi (12%). Acute on chronic cholecysticitis was found in 20% of cases. Chronic calculous cholecystitis was reported in 60% of cases. Other rare findings which were observed in this study on cholecystectomies were adenomatous hyperplasia in one case and adenomatous polyp in another (Figure 11).

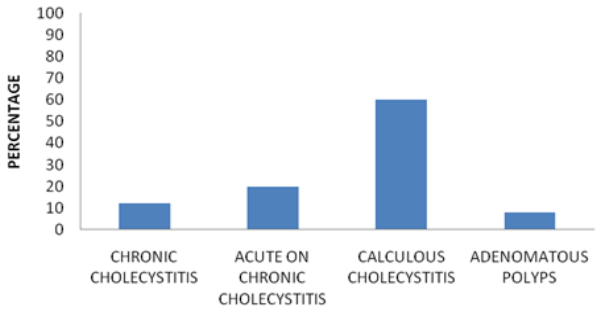

Figure 11: Distribution of gall bladder lesions N=25.

Fistulous tract with chronic inflammation was the most common finding among fistulectomy specimens studied (88%). One case of haemorrhoids and one case of fibroepithelial polyp was also reported among these specimens (Figure 12).

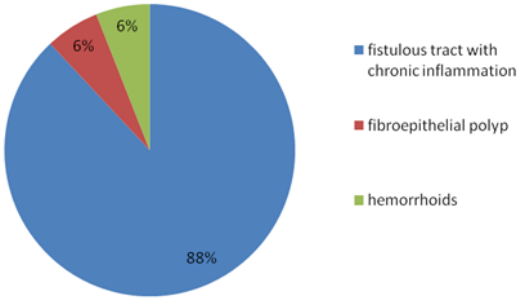

Figure 12: Diagnoses in anal biopsies.

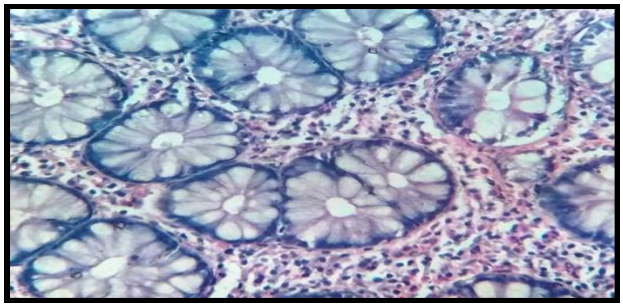

Figure 13: Nonspecific colitis.

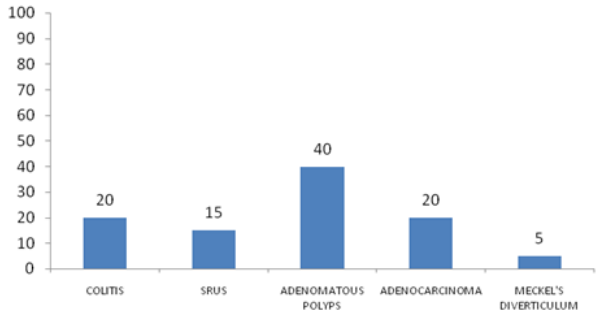

Figure 14: Histopathological spectrum in colonic biopsies.

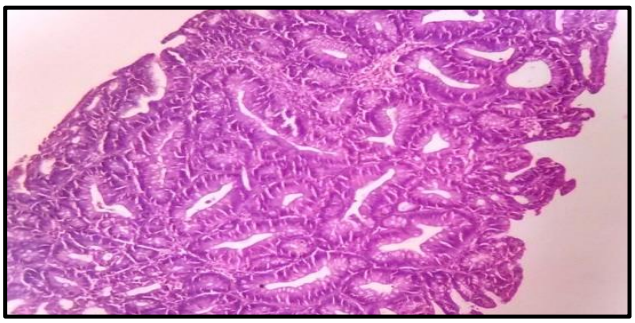

Figure 15: Tubular adenoma.

Out of the 20 colonoscopic and ileal biopsies received, four cases were reported as having non-specific colitis (20%) (Figure 13).

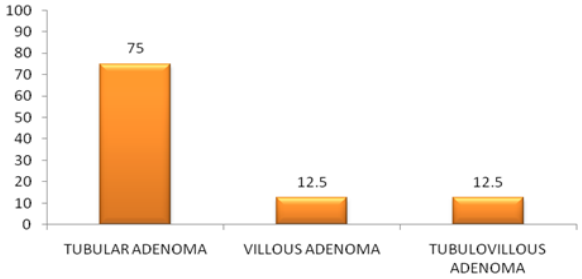

Figure 16: Subtypes of colonic polyps.

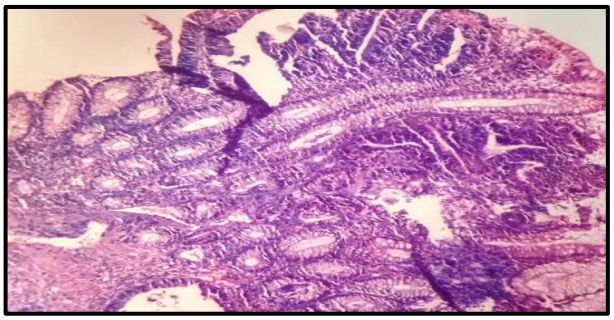

Figure 17: Villous adenoma.

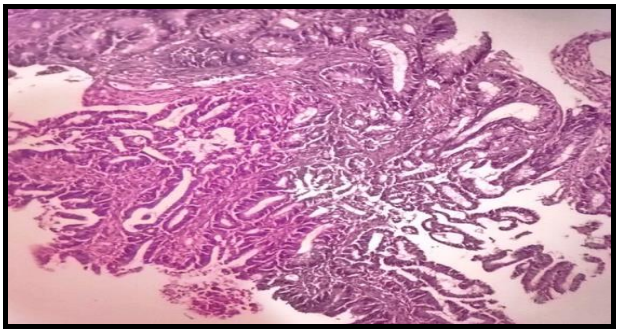

Figure 18: Tubulovillous aenoma.

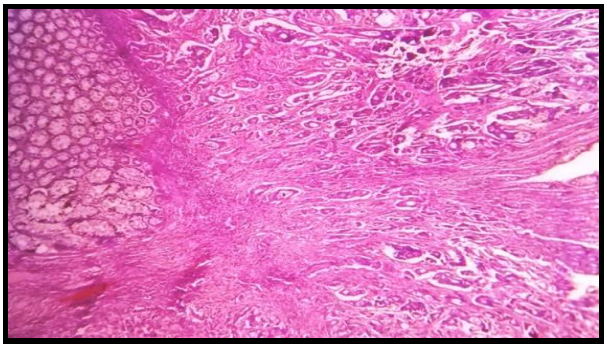

Figure 19: Moderately differentiated adenocarcinoma in colonic mucosa.

One ileal biopsy received showed Meckel's diverticulum with non-specific ileitis. Adenomatous polyp was

reported in eight of the biopsies (40%) (Figure 14). Tubular adenoma was the most common subtype among adenomatous polyps seen in six of the eight cases (75%) (Figure 15). Tubulovillous adenoma with dysplasia and villoglandular adenoma with dysplasia was seen in one case each (Figure 16), (Figure 17), (Figure 18). Adenocarcinoma was reported in four cases (20%) (Figure 19). Three cases of solitary rectal ulcer syndrome were also reported among the 20 lower gastrointestinal tract biopsies (20%).

DISCUSSION

Gastrointestinal tract lesions are the most common pathology seen in routine clinical practice. These include a varied group of disorders which are broadly classified based on symptoms as those of upper gastrointestinal disorders and lower gastrointestinal disorders. In a prospective study conducted on 100 upper gastrointestinal biopsies by Krishnappa Reshmi et al[1], they have observed that the most common biopsy received is gastric biopsy accounting for 68% of the total. In this study, gastric biopsies accounted for 56% of the upper gastrointestinal tract biopsies. In the same study, next common specimen was esophageal biopsies which amounted to 25% of the cases. In this study, it is observed that esophageal biopsies accounted for 8% of the cases. Xanthelasma in endoscopic gastric biopsies are reported in 4% of the cases according to Sternberg et al[2]. In this study, one of the gastric biopsies showed xanthelasma in addition to chronic gastritis**.**

Intestinal metaplasia is a complex process reported in stomachs' with atrophic gastritis. There are two types of metaplasia – incomplete and complete. These can be identified by the use of special stains like PAS with or without diastase, Alcian blue stain at varied pH of 2.5,1 and 0.5. PAS positivity will detect neutral and sialomucins only. Alcian blue at 0.5 will detect sulfomucins positive in complete intestinal metaplasia. In this study, intestinal metaplasia along with chronic gastritis and H.Pylori positivity was found in two gastric biopsies[3].

H.pylori infection is the most common cause of chronic gastritis.[2,4-8] In western population H.pylori infection manifests as diffuse antral gastritis (DAG). But in underdeveloped countries, this manfests as multifocal atrophic gastritis (MAG) which has patchy involvement of the pylorus, body and cardiac mucosa. Hence, the density of these organisms is also reduced in MAG. Thus, the detection of H.pylori is also less common in the Indian population compared to the western population. In a study conducted by Poonam Sharma et al on 100 gastroduodenal biopsies, it was found that H.pylori was positive in 47% of the cases and negative in 53% of the cases. In this study, it was observed that 61% of the cases showed H.pylori by Giemsa stain and 39% of the cases were H.pylori negative.[4] Polyps of the gastric mucosa could be of many types like Peutz-Jegher polyp, juvenile polyp, hyperplastic polyp, inflammatory fibroid polyp and adenomas.[2,9] Hyperplastic polyps or regenerative polyps or hyperplaseogenous polyps are common in both adults and children. These rarely undergo malignant transformation (2%-3.5%). In this study, it was observed that hyperplastic polyps constituted the majority of non-neoplastic polyps (10%).

Adenomatous polyps of the gastric mucosa constitute 7%-10% of all gastric polyps. Tubulovillous adenoma or villous adenoma types are commoner compared to the tubular variety. These adenomas have a 5%-15% risk of conversion into malignancy.[2,10] In this study, it was observed that adenomatous polyps accounted for 5% of the neoplastic polyps.

Sahu et al in their study on lower gastrointestinal endoscopy observed that 52% of the total colonoscopic biopsies only had pathology.[11] Inflammation of the colonic mucosa may exhibit varied types like chronic colitis, diffuse active colitis, focal active colitis, ischemic type colitis and intraepithelial lymphocytosis. Other special forms of colitis are collagenous colitis, lymphocytic colitis, acute ischemic colitis and eosinophilic colitis. In a study conducted by Azhar Qayyum, it is found that tubular adenoma is the most common neoplastic polyp among the colonic polyps. Similarly, in this study also, tubular adenomas accounted for 75% of neoplastic polyps.[12-15] In the same study, it was observed that non-specific colitis was seen in 25% of the cases. Similarly, in this study 20% of the colonoscopic biopsies were diagnosed as non-specific colitis.

Polyps of the colon and rectum include two major types – serrated polyps and neoplastic adenomatous polyps[16]. Serrated polyps further include hyperplastic polyps, traditional serrated adenomas and sessile serrated adenomas. Neoplastic adenomatous polyps include the tubular adenomas, tubulovillous adenoma and villous adenoma. Also many syndromes are associated with polyps in the intestinal mucosa – eg. Peutz –Jegher syndrome, Cowden disease, Juvenile polyposis, Familial adenomatous polyposis, Cronkite-Canada syndrome etc. Serrated adenomas are precancerous lesions which have CpG island methylator phenotype (CIMP), microsatellite instability (MSI) and exhibit mutations of BRAF gene. Neoplastic adenomas by definition consist of dysplastic epithelium.[2] This dysplasia has been further classified as of low grade and high grade. Usual common adenomas generally have low grade dysplasia. High grade dysplasia previously reported as carcinoma in situ is diagnosed only if both architectural and cytological changes are noted.

Cholecystitis is the most commonly encoutered pathology in cholecystectomy specimens. Chronic cholecystitis is associated with cholelithiasis in >90% of cases.[2] In this study, cholecystitis with cholelithiasis was seen in 60% of cases. Many variants of chronic cholecystitis are also

seen like lymphoplasmacytic and sclerosing cholecystitis, AIDS related cholecystitis, follicular cholecystitis, eosinophilic cholecystitis and xanthogranulomatous cholecystitis. Polyps of the gall bladder are of many types including cholesterol polyps (50%), lymphoid polyps, inflammatory polyps and hamartomatous polyps. In this study, two cases showed features of adenomatous polyps in addition to cholecystitis. Two liver biopsies received during the study period were also included in the study. One of the biopsies showed secondary adenocarcinomatous deposits. The other biopsy was reported as chronic active hepatitis.

CONCLUSION

Histopathological analysis of gastrointestinal lesions aids the clinicians for follow up and specific treatment. In this study, it was observed that endoscopic biopsies from the gastric mucosa (20%) and duodenum as the most common specimens received in the surgical pathology department. Similarly, among the lower gastrointestinal tract biopsies, it was observed that appendix (39%) and anal fistulectomy (9%) specimens as the most common specimens received. Histopathological analysis shows that in both the upper and lower gastro-intestinal tract lesions, endoscopic and colonscopic correlation is a must for accurate diagnosis.

ACKNOWLEDGEMENTS

Authors would like to acknowledge the Bharath University and Sree Balaji Medical College and Hospital for providing the necessary material for this study. Authors would also like to acknowledge Dr. Prof. Hemalatha Ganapathy for guidance in interpretation of the biopsies in this study.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Rashmi K, Horakerappa MS, Karar A, Mangala G. A study on histopathological spectrum of upper gastrointestinal tract endoscopic biopsies. Int J Med Res Health Sci. 2013;2(3):418-24.
2. Mills SE, Carter D, Greenson JK, Oberman HA, Reuter V, Stoler MH. In:Sternberg's diagnostic surgical pathology. 4th ed. Philadelphia: Lippincott Williams and Wilkins. 2004.
3. Ohkuma K, Okada M, Murayama H, Seo M, Maeda K, Kanda M, et al. Association of Helicobacter pylori infection with atrophic gastritis and intestinal metaplasia. J Gastroenterol Hepatol. 2000;15(10):1105-12.
4. Sharma P, Kau KK, Mahajan M, Gupta P. Histopathological spectrum of various gastro-duodenal lesions in North India and prevalence of Helicobacter pylori infection in these lesions: a prospective study. Int J Res Med Sci. 2015;3(5):1236-41.
5. Pailoor K, Sarpangala MK, Naik RCN. Histopathological diagnosis of gastric biopsies in correlation with endoscopy – a study in a tertiary care centre. Advance Laboratory Medicine International. 2013;3(2):22-31.
6. Hussain SI, Reshi R, Akhter G, Beigh A. Clinico-histopathological study of upper gastrointestinal tract endoscopic biopsies. Int J Cur Res Rev. 2015;7(16).
7. Nwokediuko SC, Okafor OC. Gastric mucosa in non-ulcer dyspepsia; a histopathological study of Nigerian patients. J Gastroenterol. 2007;5:121-32.
8. Kumar A, Bansal R, Pathak VP, Kishore S, Arya PK. Histopathological changes in gastric mucosa colonized by H. pylori. Indian J Pathol Microbiol. 2006;49:352-6.
9. Gurung P, Hirachand S, Pradhanang S, Lama S. A Histopathological study of gastrointestinal polyps in tertiary care hospital. Nepal Journal of Institute of Medicine. 2014;36:1.
10. Durrani AA, Yaqoob N, Abbasi S, SiddiqM, Moin S. Pattern of upper gastrointestinal malignancies in northern Punjab. Pak J Med Sci. 2009;25(2):302-7.
11. Sahu S, Husain M, Sachan P. Clinical spectrum and diagnostic yield of lower gastrointestinal endoscopy at a tertiary centre. The Internet Journal of Surgery 18:1.
12. Qayyum A, Sawan AS. Profile of colonic biopsies in king Abdul Aziz university hospital, Jeddah. J Pak Med Assoc. 2009;59(9).
13. Yen EF, Pardi DS. Non-IBD colitides (eosinophilic, microscopic). Best Practice & Research Clinical Gastroenterology. 2012;26:611-22.
14. Silva JG, Brito T, Cintra DAO, Laudanna AA, Sipahi AM. Histologic study of colonic mucosa in patients with chronic diarrhea and normal colonoscopic findings. J Clin Gastroenterology, 2006;40:44-8.
15. GUIDELINE: Appropriate use of gastrointestinal endoscopy. American Society for Gastrointestinal Endoscopy (ASGE). Gastrointest. Endosc. 2012;75(6):1127-31.
16. Bond JH. Polyp Guideline: Diagnosis, Treatment, and Surveillance for Patients With Colorectal Polyps. The American Journal Of Gastroenterology. 2000;95(11).

Cite this article as: Prasaad PR, Rao B. Histo-pathological spectrum of gastrointestinal lesions - an experience in a tertiary care centre in South India. Int J Res Med Sci 2016;4:3407-12.