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Original Articlevaluation of Endoscopic Biopsies of Esophagus - A Clinico Pathological Study

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***Abstract**:*

***Aims and objectives**: To study the endoscopic biopsies of esophagus, to assess the overall utility of endoscopic biopsy in esophageal lesions and to study the various esophageal lesions in relation to age and sex of the patients, site of occurance and distribution. Materials & methods: A total number of 43 cases of esophageal lesions are clinically identified and subjected to endoscopic biopsy, the departments of Gastroenterology and Pathology, Government General Hospital, Rangaraya Medical College, Kakinada, over a period of two years from 1999 to 2001.Observations: Out of 43 cases of esophageal lesions, male patients are 25 and female patients are 18 with male to female ratio of 2:1.5 Among them majority of the patients presented with dysphagia. In the 43 cases of esophagus 33(76%) cases were malignant lesions, 2(5%) cases were dysplasia and 8(19%) cases were nonspecific inflammation. Conclusion: Endoscopic biopsy is the safest, non-invasive, affordable and time saving investigating procedure of choice to obtain a preoperative diagnosis in both neoplastic and non neoplastic lesions of esophagus.*

***Keywords**: Endoscopic biopsies, Esophageal lesions, Pathological study.*

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I. Introduction

The procedure of endoscopy was started way back in the 18th century. Endoscopy, a Greek word means endo-within and skopein- to view or observe.With the introduction of upper gastrointestinal endoscopy, a new era entered into the field of gastroenterology. The main advantage of this procedure edges over the routine radiological examination in direct visualization of the lesion and to detect even the minute lesions with the help of biopsies[1].Previously endoscopy was used to inspect gastro intestinal lesions and diagnosing them by their endoscopic appearances[2,3]. Later with the introduction of forceps, the process of taking biopsies has also been in use. It is a simple outpatient procedure done under local anaesthesia. It can be repeated if necessary and the complications are less, thus enabling diagnosis without laporatomy. The diagnostic accuracy is upto 95% for malignant lesions when combined with brush cytology[1]. The indications for endoscopic biopsy in clinical practice are to obtain a preliminary preoperative diagnosis for all kinds of inflammatory, non-neoplastic and neoplastic lesions of gastrointestinal tract and to arrive at a definitive specific diagnosis in inoperable cases as aguide to rational treatment[4,5]. It is also used for the analysis of gastrointestinal enzymes and to obtain sampling of bacterial flora which inhabit the gastrointestinal lumen[6].The purpose of endoscopic biopsy is to confirm the clinical impression of the lesion and to exclude other diseases that have a similar endoscopic appearance[7].

II. Materials And Methods

A total number of 43 cases of esophageal lesions are clinically identified and subjected to endoscopic biopsy, the departments of Gastroenterology and pathology, Government General Hospital, Rangaraya Medical College, Kakinada, over a period of two years from 1999 to 2001. The following are the materials required for endoscopic biopsy:

1. Endoscope- Olympus G I F-100(flexible videoendoscope)
2. Biopsy forceps
3. Local anaesthesia (2%xylocaine)
4. Fixative – 10% buffered formalin
5. Stains- Hematoxylin and Eosin

After obtaining detailed clinical data, consent is taken from the patient and is subjected for evaluation and biopsy. The endoscopic biopsy technique is as follows: first the patient is not to take any food for 8hrs prior to the procedure. Xylocaine gel is used for local anaesthesia of the pharynx and hypopharynx just before passing endoscope. Anticholinergics are used to reduce the secretions and motility. The patient is instructed to liedown in the left lateral position. The endoscope is passed through a bite guard, and evaluated for any abnormalities such as erosions, thickened irregular mucosa or any growth. If any aabnormality is seen, the biopsy forceps is passed through the endoscope and biopsy is taken from that area. This material is fixed immeadiately in 10% formalin fixative , routine processing was done and sections are stained with hematoxylin and eosin.

III. Observations

A total number of 43 cases of esophageal lesions are subjected for endoscopic biopsy. Detailed clinical history and endoscopic findings are taken into consideration prior biopsy.Age and sex of the patient, presenting complaint, endoscopic findings and site of lesion are taken and correlated with histopathological features.In the present study majority of malignant lesions of esophagus have occurred in 51 to 60 years. Age incidence was shown in table-1. Out of 43 cases of esophageal lesions, male patients were 25 and female patients were 18 with male to female ratio of 2:1.5. Dysphagia was the major complaint in 30 cases, pain , vomiting was the chief complaint in 5 cases respectively, and 3 cases was presented with anorexia. In the presented study most of the (33 out of 43) esophageal lesions were presented as fungating polypoidlesions and diffuse infiltrative growths. In the remaining cases 8 were presented as ulcerated lesions and 2 as superficial erosions. Endoscopic findings was showed in table-2. In 43 cases of esophagus 33 were esohageal malignancies. Of these 33 cases 11(33%) cases were at upper 1/3, 13 (40%) cases at middle 1/3, 8(24%) cases at lower 1/3 of esophagus and 1 (3%) case at gastroesophageal junction was seen. 2 cases were found to be exhibiting dysplasia one at upper 1/3 and other at lower 1/3 of esophagus. Site distribution of lesions was showed in table -3.Of the 43 cases studied histopathologically, 33(76%) cases were reported as malignant lesions, 2(5%) as dysplasia, and 8(19%) as nonspecific inflammation. Out of 33 malignant lesions, 31 cases(94%) were reported as squamous cell carcinoma, in which 10 cases(30.4%) were well differentiated squamous cell carcinoma,(Figure-1) 17 cases (51.6%) were moderately differentiated squamous cell carcinoma(Figure-2), 4 cases(12%) were poorly differentiated squamous cell carcinoma(Figure-3) and 2 cases (6%)were diagnosed as well differentiated adenocarcinoma probably from barret's esophagus or cardiac end of stomach. All these 33 cases were presentedas fungating, polypoid and diffusely infiltrating growths endoscopically.2(5%) cases presented asulcerative lesions on endoscopy, showed the features of dysplasia on histopathology.In one(3%) case, the patient is HIV positive and clinically presented with loss of appetite and abdominal pain. Endoscopy revealed superficial erosions and is histopathologically diagnosed as nonspecific inflammatory lesion. 7cases (16%) were clinically and endoscopically suspected as malignant, but histopathology showed the features of nonspecific inflammatory lesions. The histopathological details of lesions were showed in table-4.

Table -1 Showing age distribution of lesions.

Age	Dysplasia	Malignant Lesions	Nonspecific Lesions	Total No. Of Cases
21-30	01	02	01	04
31-40	01	06	01	08
41-50	-	09	03	12
51-60	-	10	03	13
61-70	-	04	-	04
71-80	-	01	-	01
81-90	-	01	-	01
Total	2	33	08	43

Table-2 showing endoscopic findings of the lesions

ENDOSCOPIC FINDINGS	NO. OF CASES	PERCENTAGE
Fungating, polypoid lesions	20	46
Diffusely infiltrating growth	13	30
Ulcerative lesions	08	19
Superficial lesions	02	05
Total	43	100

Table-3 showing site distribution of lesions

site	dysplasia	malignant lesions	nonspecific lesions	no. of cases	%
uPPER1/3	01	11	01	13	30
mIDDLE1/3	-	13	05	18	42
lOWER1/3	01	08	02	11	26
g.e JUNCTIOM	-	01	-	01	02

Table-4 showing histopathological details of lesions

DIAGNOSIS	NO.OF CASES	%
Malignant lesions	**33**	**76**
➢ Well differentiated squamous cell carcinoma	10	30.4
➢ Moderately differentiated squamous cell carcinoma	17	51.6
➢ Poorly differentiated squamous cell carcinoma	04	12
➢ Well differentiated adenocarcinoma	02	06
Dysplasia	**02**	**05**
Nonspecific inflammation	**08**	**19**
Total	43	100

IV. Discussion

In the present study of 43 esophageal lesions of which 76% were malignant. In that 94% were squamous cell carcinoma and only 6% were adenocarcinoma. So it is evident that squamous cell carcinoma is the most common malignant lesion of esophagus. Similarly in the study conducted by Turnball and Goodner, majority of the esophageal malignancies are squamous cell carcinoma(94%) and only few are adenocarcinoma(3%)[8]. Ellis et al studied 268 esophageal lesions, in which 93% were squamous cell carcinoma and 3% were adenocarcinoma.[3] Where as in a study of 91 cases of esophageal cancer by David B.skinner et al 47.25% were squamous cell carcinoma, 47.25% were adenocarcinoma and 5.5% sarcoma.[9] The incidence is comparable with most of the other studies as illustrated in table-5.In our study 31 cases of squamous cell carcinoma of esophagus 42% were located in middle 1/3, 35.5% in upper 1/3, and 22.5 % in lower 1/3 of esophagus. These results are compared with studies of Bogomortez WV et al. Where in a study of 76 cases of esophageal lesions, squamous cell carcinoma appeared mostly in the middle 1/3 of esophagus(43%).[10] Coetzee et al studied 244 cases, in which 39% occurred in upper 1/3, 50% in middle 1/3 and 11% in lower 1/3 of esophagus.[11] Lu et al studied 217 cases, in which 9% occurred in upper 1/3, 63% in middle 1/3 and 28% in lower 1/3 of esophagus.[2] Location of squamous cell carcinoma of esophagus studied by various workers are shown in table-6.

The incidence of adenocarcinoma of esophagus is much less when compared to squamous cell carcinoma and its usual location is lower 1/3 of esophagus. In our study 2cases(6%) are diagnosed as adenocarcinoma of esophagus, one of which is located in the lower 1/3 and another at the gastroesophageal junction.Ellis et al, studied 300 cases of adenocarcinoma of esophagus, in which 93% were located in the gastroesophageal junction, 3.7% in lower 1/3, 2.7% in middle 1/3 and 0.6% in upper 1/3 of esophagus.[3] Turnball and Goodner reported 45 cases of primary adenocarcinoma. Most of them(47%) have occurred in gastroesophageal junction, 28% in lower 1/3, 16% in middle 1/3 and 9% in upper 1/3 of esophagus. Lortal – Jacob. J.L et al, in 1986 reported 16 cases of esophageal adenocarcinoma, 56% of which have occurred at the gastroesophageal junction.[12] Blot WJ, et al[13] and Peran, Cameron AJ et al [14] reported that there is an increase in the incidence of adenocarcinoma at gastroesophageal junction. Location of adenocarcinoma of esophagus studied by various workers were shown in table-7. Depending upon the microscopic features squamous cell carcinoma is graded as well differentiated, moderately differentiated and poorly differentiated. Most of the squamous cell carcinomas were well differentiated or moderately differentiated. In our series 30% were well differentiated , 52% were moderately differentiated and 12% were poorly differentiated.

The features of well differentiated tumours are abundant keratin, easily demonstrable intercellular bridges and minimum nuclear and cellular pleomorphism of the squamous epithelium. Poorly differentiated tumours have marked cellular atypia, nuclear pleomorphism, hyperchromatism and no keratin or intercellular bridges. Moderately differentiated tumors stand between well and poorly differentiated tumours.Dysphagia of esophagus is a well recognized condition particularly in areas with high incidence of invasive esophageal carcinoma. Present series included 2 cases of dysplasia, one of which is located in upper 1/3 and other in lower 1/3 of esophagus. 8(19%) cases were diagnosed as nonspecific inflammatory changes.

Table -5 showing comparision of incidence with other studies.

Study	**NO.of Cases**	**Squamous cell carcinoma %**	**Adenocarcinoma%**	**Others**
David B Skinner et al	91	47.25	47.25	5.5
Turnball & Goodner	100	94	03	33
Ellis et al	268	93	03	04
Present study	33	94	06	-

Table -6 showing location of squamous cell carcinomas by various studies.

Study	**NO.of Cases**	**Upper 1/3 %**	**Middle 1/3%**	**Lower 1/3%**
Skinner et al	43	25.5	39.5	35
Coetzee et al	244	39	50	11
Ellis et al	249	30	52	18
Gynning et al	250	07	54	39
Lu ey al	218	09	63	28
Leborbnee et al[15]	541	18	44	38
Marcial ey al[16]	408	17	55	27
Nealon[17]	316	19	47	34
Voluntilainen	519	09	58	33
Present study	31	35.5	42	22.5

Table -7 showing location of adenocarcinoas by various studies

Study	**No. of cases**	**Upper 1/3%**	**Middle 1/3%**	**Lower 1/3%**	**G.E junction%**
Skinner et al	43	2.3	11.7	86	-
Ellis et al	300	0.6	2.7	3.7	93
Turnball &Goodner	45	09	16	28	47
Lortal-Jacob	16	08	10	26	56
Present study	02	-	-	50	50

V. Conclusion

It is evident from the above study that endoscopic biopsy is the safest, non-invasive, affordable and time saving investigating procedure of choice to obtain a preoperative diagnosis in both neoplastic and non neoplastic lesions of the gastrointestinal tract.

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