

To Study The Incidence of Oro-Digestive Tract (ODT) Lesions in the Patients Admitted At A Tertiary Hospital, Konkan Region, Maharashtra State, India

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Abstract

Background: Oro-digestive tract (ODT) malignancies are a common cause of death in India. The aims of this study were: 1. To determine the incidence of ODT lesions in Konkan region and to study the age-wise and site-wise distribution of ODT lesions. 2. To analyze the distribution of benign and malignant gastro-intestinal tract lesions according to histopathology. 3. To study the histopathological correlation in cases, where both the biopsy and histopathological studies of resected specimen were done, wherever possible.

Methods: 120 patients were included in study over a period of one year from 1st August 2015 to 31st July 2016. All the patients with oro-digestive tract lesion based biopsies alone, resected specimens alone and both consequently done were examined and included in the study. All the biopsies specimens and resected specimens were fixed in 10% formalin and processed in automatic tissue processor. Routine Haematoxylin and Eosin staining was done and examined under light microscope. All the data was analyzed with respect to age-wise, sex-wise, site-wise distribution along with incidence of various ODT lesions studied in all 120 cases. All patients in whom both biopsy and final specimen were resected, histopathological correlation was done in them.

Results: Patients in the age group of 61 – 70 years were having maximum number of Gastro Intestinal lesions in the present study. Males were affected more commonly than females. High adequacy of samples for histopathological examination of ODT lesions was seen in the present study. Oral cavity was most affected site of ODT lesions for both benign and malignant pathology. Overall malignancy was higher in incidence than benign lesions of ODT. In malignancy cases, oral cavity was the common site. Squamous cell carcinoma was the most commonly seen carcinoma in oral cavity. Cases with dysplasia were most commonly diagnosed benign lesions of ODT. Pre-operative biopsy and post-operative histopathology of resected ODT specimens revealed similar features on microscopy.

Conclusion: Most predominant ODT lesions in Konkan region were involving the oral cavity with male predominance and affecting geriatric population, in our institute. Well-differentiated oral squamous cell carcinoma was the most commonly diagnosed malignancy in the Konkan region due to chronic tobacco chewing in this region. Pre-operative guided biopsy helps in prompt management and subsequent better survival, especially in malignancy cases. Biopsy findings are subsequently well-correlated with histopathology findings of final resected specimens. This signifies the importance of pre-operative biopsy based diagnosis in patients.

I. Introduction

The major public health problem all over the world, accounting for almost one in every four deaths is gastrointestinal tract (GIT) cancer.¹ Worldwide GIT malignancies are among the top ten leading sites for cancers.⁹ GIT malignancies account for 20% of estimated new cancer cases globally. Nearly 15% of estimated deaths worldwide are due to GIT malignancies.^{2,3,4}

Among all lesions of the body, GIT represents 5.38% with 28.72% of malignant tumors.³ Definitive diagnosis of GIT lesions largely dependent on histopathological confirmation and is one of the basis for planning proper treatment regimen. GIT is a hollow tube extending from the oral cavity to the anus that consists of anatomically distinct segments, including the oral cavity, esophagus, stomach, small intestine, large intestine, rectum, and anus.³ The diseases of GIT are most common as compared to other systems of the body. Some of these are associated with water and nutrient transport. Mal-absorption and diarrhea are caused due to disturbances of these processes. GIT malignancies exhibit very remarkable and striking variations in the occurrence in different regions and different races of the world. They remain asymptomatic for long periods and are often very advanced at the time of diagnosis.^{3,6} The GI tract lesions have symptomatology which range from dyspepsia to altered bowel movements; dysphagia to bleed. Upper gastrointestinal tract disorders are one of the most commonly encountered problems by the clinicians. Lesions of upper gastrointestinal tract include lesions arising from the esophagus, stomach, and first and second part of duodenum.^{7,8}

The disorders of upper gastrointestinal tract are responsible for a great deal of morbidity and mortality and are one of the most commonly encountered problems in clinical practice.⁹

The esophagus and stomach can be sampled for wide variety of infections, inflammatory disorders, vascular disorders, mechanical conditions, toxic and physical reactions including radiation injury and neoplasm. Globally, esophageal cancer is the eighth most common cancer and the sixth most common cause of cancer-related mortalities. Esophageal cancer accounts for 5.5% of all malignant tumors of the GI tract. Squamous cell carcinoma is the most common carcinoma of the esophagus. Adenocarcinoma predominantly arises from Barrett's esophagus and long standing gastroesophageal reflux disease (GERD). It exhibits strong gender bias, being seven fold more common in men. Benign lesions of esophagus have a varied spectrum of etiologies in terms of clinical course and underlying pathologic features. Benign esophageal tumors are uncommon as compared with esophageal carcinoma, which can sometimes cause dysphagia but often have insignificant clinical outcomes.⁸

Malignancies of the esophagus and stomach are detected late as the patients are either asymptomatic or present with mild non-specific symptoms in the early stages of disease. Thus early detection of these lesions become rather important.⁷

Gastric cancer is globally the fourth most common cancer encountered. 10% of new cancer cases in the world are of gastric cancers. Adenocarcinoma is the most important and common malignancy (90-95%). The incidence of gastric cancers gradually increases with age, the highest incidence being after the age of 80 years. The major risk factors for the development of gastric adenocarcinoma are Helicobacter pylori infection and a high dietary salt intake. About 25-50% of Non-Hodgkin's lymphomas arise at extra nodal sites with the gastrointestinal tract as the commonest extra nodal site, accounting for about 4-20 % of all cases. Lymphoma constitute upto 10 % of all gastric malignancies especially in Asian countries. Most gastrointestinal mesenchymal neoplasms are Gastro intestinal stromal tumors (GISTs). Tumors larger than 5 cm in diameter with signs of necrosis and bleeding are important parameters of malignancy of GIST. Neoplasm of Intestine is a common form of neoplasm in India and worldwide. It is a leading cause of mortality in the developed world. The intestines are also principal sites where immune systems interfaces with a diverse array of antigens present in food and gut microbes. The small intestine and colon account for the majority of GI tract length and are the sites of a broad array of diseases. Since, intestinal bacteria outnumber the eukaryotic cells in our bodies by tenfold. The small intestine and colon are frequently involved by infectious and inflammatory processes.⁵

Small intestine is the longest hollow organ that represents 75% of the length of the alimentary tract, constitutes 2% of all malignant neoplasm of the gastrointestinal (GI) tract occur in the small intestine. NHL are the most commonly found lesions. The large intestine and anal canal are also the sites for varied range of non-neoplastic and neoplastic diseases, which at times, can lead to serious complications. They are the sites for infections, vascular disorders, ulcers, various inflammatory conditions and neoplasms. Nearly 90 % of all cancers of large intestine are adenocarcinomas. They arise as polyps and produce relatively early symptoms and at a stage generally curable by resection. Less than 20 % of cases occur under 50 years and the peak incidence of colorectal carcinoma is 60-70 years of age. Colorectal carcinoma below 40 years of age usually has a poor prognosis. Other than this, dysplastic polyp, ulcerative colitis, granulomatous lesions are also found.² Epithelial tumours are major cause of morbidity & mortality. Colorectal cancer ranks fourth of all cancers worldwide, accounting for approximately 9% of all cancer cases. Most common malignancies arising in the colorectal region are adenocarcinomas, others being carcinoid, anal zone carcinoma & melanoma. An estimate shows that about 70-90% of colorectal cancers arise from adenomatous polyps.⁴ Non neoplastic polyps are classified as hyperplastic, hamartomatous, juvenile & Peutz Jeghers polyp, inflammatory & lymphoid polyp. Other benign conditions are adenoma, lipoma, neuroma, angioma, etc. Among oro-digestive tract lesions, oral malignancies are more common in Konkan region due to chronic tobacco chewing.

II. Material And Methods

With approval of Ethics Committee and consent of patients, the study was conducted at our tertiary hospital in Konkan region, Maharashtra state. It was a retrospective, cross sectional study over a period of one year from **1st August 2015 to 31st July 2016**. All together, 120 patients were included in study. All the patients of whom ODT lesion biopsies alone, resected specimens alone and both consequently done were examined and included in the study. All the biopsies specimens and resected specimens were fixed in 10% formalin and processed in automatic tissue processor. Routine Haematoxylin and Eosin staining was done and examined under light microscope. All the data was analyzed with respect to age-wise, sex-wise, site-wise distribution along with incidence of various gastrointestinal tract lesions studied in all 120 cases. All patients in whom both biopsy and specimen were resected, histopathological correlation was done in those patients, wherever possible.

III. Inclusion Criteria

1. All the patients in whom only ODT lesion biopsy, only histopathology of resected specimen and both biopsy and histopathology of resected specimens were conducted were included in study.
2. All cases of oral cavity, esophagus, stomach, small intestine, large intestine, rectum and anus were included.

Exclusion criteria :

1. Histopathology reports of other abdominal organs apart from ODT like liver, pancreas, kidney were excluded from the present studies.
2. Concurrent associated malignancies of abdominal organs apart from ODT like hepatocellular carcinoma were excluded from the present studies.

IV. Results

1. Patients in the age group of 61 – 70 years were having maximum number of ODT lesions in the present study.
2. Males were affected were commonly than females in the present study.
3. High adequacy of samples for histopathological examination of ODT lesions was seen in the present study.
4. Rate of histopathology diagnosis on only biopsy of ODT lesions was higher than the patients in whom only resected specimens without biopsy were sent for histopathological diagnosis.
5. Oral cavity was most affected site of for ODT lesions for both benign and malignant tumors.
6. Overall malignancy was higher in incidence than benign lesions of ODT in the present study.
7. In malignancy cases, well differentiated carcinoma was most commonly seen rather than poorly differentiated grade in the present study, depending on the type of tumour.
8. Cases with oral cavity: squamous dysplasias were most commonly diagnosed lesions of ODT in present study.
9. Squamous cell carcinoma was most commonly seen carcinoma in malignant cases of ODT lesions in present study.
10. Those patients in whom biopsy and specimen together were sent for histopathology diagnosis: pre-operative biopsy and post-operative histopathology of resected specimens revealed similar features on microscopy of these Gastro Intestinal lesions. This highlights importance of pre-operative biopsy in patient's management.

V. Discussion

1. **Total number of cases :** 120
2. **Sex wise distribution :** Male patients 66 (55%), female patients 54 (45%)
3. **No. of cases where :**
only biopsy done - 81 (67.5% cases)
only histopathology of resected specimens done - 15 (12.5%)
both biopsy & histopathology of resected specimens done - 24 (20%)
4. **Cases: Site wise distribution :**

Table no. 1 : Site wise distribution

ODT Site	Total	Percentage
Oral Cavity	88	73.33%
Esophagus	12	10%
Stomach	7	5.83
Large Intestine Except Rectum	8	6.66
Small Intestine	0	0%
Rectum	5	4.16
Anus	0	0%
Total	120	100%

Table 1 shows that out of 120 ODT lesions in Konkan Maharashtra, highest number of cases-88 (73.33%) were of oral cavity followed by 12 cases (10%) of esophagus while minimal cases were seen in rectum-5 cases (4.16%).

5. **Adequate & Inadequate rate for histopathological opinion :**
Adequate cases 117 (97.5%), Inadequate cases 03 (2.5%)

6. **Overall benign and malignant cases :** Benign cases 28 (23.33%), Malignant cases 89 (74.16%). Thus malignancy was predominantly seen in ODT lesions.

7. **Age-wise distribution of ODT lesions:** Following Table 2 shows that highest number of patients were seen in age group 61 – 70 years with 30.83 % followed by those in age group of 41-50 years (24.16%). Minimum number of patients were seen in age group 11 – 20 years and 81 – 90 with 0.83% each.

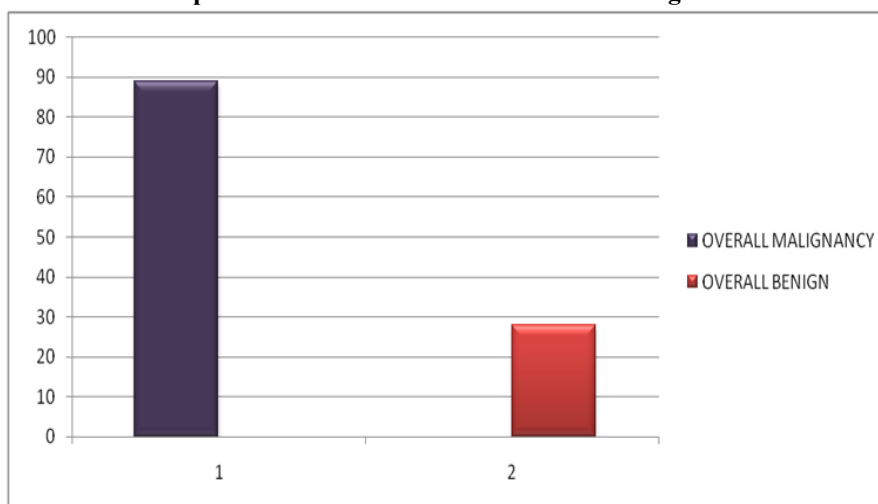
Table no. 2 : Age wise distribution

Age	Total	Percentage
11 to 20	1	0.83%
21 to 30	4	3.33%
31 to 40	18	15%
41 to 50	29	24.16%
51 to 60	21	17.5
61 to 70	37	30.83%
71 to 80	9	7.50%
81 to 90	1	0.83%
Total	120	100%

8. **Sex-wise distribution of ODT lesions:** Out of 120 cases, 55% were males while 45% cases were females. Male cases outnumbered the female cases in this study.

9. **Distribution of benign and malignant ODT lesions:** Graph 1 shows that, out of 120 cases, 89 cases were malignant (74.16%) while remaining 28 cases were benign lesions (23.33%) and three samples were inadequate for opinion (2.50%).

Graph no. 1: Distribution of ‘ODT’ lesions in general



10. **Distribution of biopsy vs histopathology of resected specimens vs both biopsy and histopathology of resected specimens:**

Only biopsy was done in most of the ODT lesions (67.5%). Both biopsy and final operated specimen related histopathology report was done in 20% cases. 15 (12.50%) cases were only histopathology of resected, operated specimens due to direct operation by surgeons based on clinico-radiological correlation. Refer Table no.3:

Table no. 3 : Distribution of cases of biopsy and histopathology of resected/ operated specimens

Total Findings	No. Of Cases	Percentage
Total: Only Biopsy Cases	81	67.50%
Total: Only Histopathology Of Resected Specimens	15	12.50%
Total: Both Biopsy And Histopathology of Resected Specimens	24	20%
Total	120	100%

11. Site-wise distribution of Biopsy Specimens: Table no.4 shows that, out of 81 biopsy cases, there were cases of oral cavity with 61.72%, while minimum cases were from rectum and stomach. 15 benign lesions and 35 malignant oral lesions with 61.72% in total, belonged to oral cavity (highest number).

Table No. 4 : Sitewise Distribution Of ODT Lesions Where Only Biopsy Was Done

ODT Site	Biopsy		Percentage
	Benign	Malignant	
Oral Cavity	15	35	61.72%
Esophagus	0	12	15%
Stomach	2	3	6.17%
Large Intestine	4	2	7%
Small Intestine	0	0	0%
Rectum	2	3	6.17%
Anus	0	0	0%
Total	81		100%

12. Site-wise distribution: only histopathology on resected specimens was done: Table no.5 shows show that, 15 out of 120 cases were subjected to operative intervention based on clinico-radiological impression. Out of 15 cases, maximum number of cases was of oral cavity with 73.33%, while minimum cases were seen in stomach and large intestine (2 cases each with 13.33%). Biopsy is must before surgical intervention but not done in these cases.

Table no. 5 : Site-wise distribution of ODT lesions where only histopathology of resected specimens was done

ODT Site	HPR of specimen		Percentage
	Benign	Malignant	
Oral Cavity	0	11	73.33%
Esophagus	0	0	0.00%
Stomach	1	1	13.33%
Large Intestine	2	0	13.33%
Small Intestine	0	0	0.00%
Rectum	0	0	0.00%
Anus	0	0	0.00%
Total	15		100%

13. Site-wise distribution: Biopsy+histopathology on resected specimens was done: Table no.6 shows distribution of cases wherein both preoperative biopsy and post-operative histopathology specimen was reported. All 24 cases were of oral cavity. This means oral malignancies/ lesions were the ones mainly operated at our center while rest were lost in follow-up or operated elsewhere.

Table no. 6 : Site-wise distribution of ODT lesions where both biopsy and histopathology of resected specimen was done

ODT Site	Both biopsy and final HPR		Percentage
	Benign	Malignant	
Oral Cavity	2 (8.3%)	22(91%)	100.00%
Esophagus	0	0	0.00%
Stomach	0	0	0.00%
Large Intestine	0	0	0.00%
Small Intestine	0	0	0.00%
Rectum	0	0	0.00%
Anus	0	0	0.00%
Total	24		100.00%

14. **Histopathology findings of malignant ODT cases:** Maximum number of malignant cases belonged to SCC with 84%.

Table No 7 : Histopathological Diagnosis Of Malignant Cases: ODT Lesions

Histopathological Findings	No. Of Cases	Percentage
Squamous Cell Carcinoma (SCC)	75	84%
Adenocarcinoma	12	13%
Verrucous Carcinoma	2	2.24%
Total	89	100%

15. **Histopathology findings of benign ODT cases:** Maximum number of benign cases belonged to squamous dysplasia: oral cavity (46.42%).

Table No 8 : Histopathological Diagnosis Of Benign Cases Of ODT Lesions

Histopathological Findings	No. Of Cases	Percentage
Squamous Dysplasia	13	46.42%
Chronic Gastritis	2	7.14%
Fungal Infection	1	3.57%
No Malignancy	7	5.83%
Acute Non Specific Colitis	1	3.57%
Leukoplakia	1	3.57%
Epithelial Polyp	1	3.57%
Hyperkeratosis And Parakeratosis	1	3.57%
Haemangioma	1	3.57%
Total	28	100%

16. **Differentiation of the 89 malignant ODT cases:** Out of 89 cases, 62 cases were well-differentiated carcinoma with 52.5% and only two cases were poorly differentiated carcinoma with 1.66% cases.

Table No 9 : Distribution In 89 Malignant ODT Cases

ODT Site	No. Of Cases	Well differentiated	%	Moderately Differentiated	%	Poorly Differentiated	%
Ca Of Oral Cavity	88	49	77.77%	18	72%	1	50%
Ca Of Esophagus	12	7	11.11%	4	16%	1	50%
Ca Of Stomach	7	3	4.76%	1	4%	0	0%
Ca Of Large Intestine	8	1	1.58%	1	4%	0	0%
Ca Of Small Intestine	0	0	0%	0	0%	0	0%
Ca Of Rectum	5	2	3.17%	1	4%	0	0%
Ca Of Anus	0	0	0%	0	0%	0	0%
Total	120	63	52.5%	25	20.83%	2	1.66%

VI. Conclusion

Most predominant ODT lesions in our Konkan belt, Maharashtra were most commonly the cases involving the oral cavity with male predominance and affecting the geriatric population. Well differentiated squamous cell carcinomas were most common malignant cases in present study. Pre-operative guided biopsy helps in prompt management and subsequent better survival, especially in malignancy cases. Biopsy findings are often subsequently well correlated with histopathology findings of final resected specimens. This infers the importance of pre-operative biopsies in ODT lesions.

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Conflict of interest

The authors do not have any competing interests.

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