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Original Article

A COMPARATIVE PROSPECTIVE STUDY OF EFFICACY OF STRUCTURED REPORTING-A METHOD TO ENHANCE REPORTING QUALITY IN ESOPHAGEAL CARCINOMA.

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Abstract

Background
Accurate assessment of the stage of esophageal cancer aids in devising an efficient treatment plan for treating patients with esophageal carcinoma. The structured reporting format of the computed tomography scanning improves the efficiency over the descriptive reporting format. This study aims to determine the efficiency of the structured reporting format over the descriptive reporting format in esophageal carcinoma.

Methods
A comparative prospective study was carried out in which two radiologists were recruited. One individual was tasked with creating descriptive reports, while the other was assigned to create reports in a standardised manner. the data of each patient was written in both formats. Subsequently, 50 surgeons were requested to evaluate the reports and provide their feedback on both report formats.

Results
50 surgeons stated that the extraction of the data regarding esophageal carcinoma was easier in the case of structured reports. 49 out of 50 surgeons stated that it was time time-saving methodology. 50 out of 50 surgeons were more confident in devising an accurate treatment plan after the assessment of the structured reports than that of the descriptive reports.

Conclusion
Scanning of computed tomography helps in determining the stage of esophageal carcinoma and devising a treatment plan accordingly. The reporting format plays an important role in the efficient extraction of data and the devising of an accurate treatment plan. The structured report format is found to be superior to the conventional descriptive format in this study.

Recommendation
Radiologists should focus on filling each minute and significant detail in a structured report format rather than reporting it in a descriptive format.

Keywords: *Structured Report, Esophageal Carcinoma, Efficient Treatment*
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Introduction
Esophageal cancer is among the most prevalent carcinomas. The morbidity associated with esophageal carcinoma is significant. Esophageal carcinoma has two types one that is associated with epithelium is squamous epithelium carcinoma and the other is adenocarcinoma [1]. The carcinoma occurring in the epithelium is due to carcinogenic substances such as tobacco. On the other hand, adenocarcinoma is associated with inflammation of the esophageal mucosa. Adenocarcinoma is prevalent more amongst the western population [2].

Irrespective of the type of carcinoma, its prognosis is complicated and response to the treatment determines the treatment plan further. The oncologist requires a complete understanding of the current histopathological stage to devise a treatment plan. Generally, for esophageal carcinoma the removal of the tumor through surgical intervention is preferred [3]. In most cases, after surgical intervention adjuvant therapy is started, the adjuvant is

generally novel and specific towards the state of the disease [2]. Thus a proper analysis of the state is required to devise an efficient plan with a higher benefit-to-risk ratio.

The examination of the removed tumour helps understand the state of the disease. Advances in technology such as computed tomography aid in the imaging of the state of carcinoma. However, in both cases, proper analysis of the imaging and the surgically removed tumour can lead to the development of a treatment plan [3]. For thorough analysis, the appropriate reporting of the scanning is required. International health organization states that a structured report increases the accuracy of the treatment over the descriptive report [4].

Before the surgical procedure is carried out an accurate understanding of the exact location of the tumour and its other characteristics results in successful surgical removal of the tumour. The reports play an important role before and after the surgical intervention [5]. Before reports are required to understand the anatomy and after reports are required to determine the response and devise a treatment plan. This study aims to compare the descriptive and structured report format in the case of esophageal carcinoma and understand its role in treatment efficiency.

Method

Study design

A comparative cross-sectional study.

Study setting

The study was carried out at a tertiary care centre in Jamshedpur, Jharkhand, India.

Participants

Patients who had confirmed the diagnosis of esophageal carcinoma and had TNM staging reports before and after the surgery.

Bias

There was a chance that bias would arise when the study first started, but it was avoided by giving all participants the identical information and hiding the group allocation from the nurses who collected the data.

The radiologists were selected for this study. They were qualified and with experience in radiology of more than 5 years. Two were selected, and they were asked to prepare reports based on the imaging of the patients confirmed with esophageal cancer. One of them was asked to prepare descriptive reports and the other one was asked to prepare a standard report format. The standard report format was used to fill in the data of the scanning of each patient. The format was designed with the help of suggestions from oncologist surgeons. 50 surgeons were then asked to review the reports and give their comments on both types of reports.

Ethical consideration

The institutional ethics committee approved the study.

Results

50 reports were selected for the comparative analysis. The report belonged to patients within the age range of 20-45 years. Details of demography were not recorded as they were not relevant to the objective of this study. The first radiologist prepared the descriptive reports of the scanning. The second radiologist prepared a structured format of the report given in Table No. 1.

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Table no.1: Structured report format for computed tomography reports

Characteristics of tumor	
Site of tumor	
Dimensions of tumor	• Lengthwise growth of tumor • Margin of the tumore • Distance from upper margin • Distance from upper margin Circumference of the tumor
Invasion of the tumor	• Invasion in the layer of esophagus • Invasion in neigbouring tissues • Removable invasion • Non-removable invasion
Contact points of the tumor	
Histopathology	
Histological type of the tumor	Histological grade of the tumor, Types of layer and cells detected
Histopathology image	
Prognosis of the tumor	
Surgical procedure	Response to surgical procedure
Adjuvant therapy	Response to adjuvant therapy
Lymph node invasion/ status	
Region of lymph node invaded	
Status of lymph nodes above the esophagus	
Status of lymph node below the esophagus	
Metastasis	
Metastasis in the distant organ	Lungs, liver, and other organs
Metastasis in the neighbouring organ	Stomach, larynx, and other organs
Type of carcinoma	

The format was prepared such that it was easy to fill in the data and easy to extract the data from the reports. Both descriptive and structured reports were then presented to the surgeons. 50 surgeons reviewed the reports. All 50 surgeons stated that the extraction of the data regarding esophageal carcinoma was easier in the case of structured reports. 49 out of 50 surgeons stated that it was time time-saving methodology.

50 out of 50 surgeons were more confident in devising an accurate treatment plan after the assessment of the structured reports than that of the descriptive reports. It increased surgeon's efficiency and improved the communication gap in reporting the details between radiologists and surgeons. It aided in the successful outcomes of the surgical intervention.

Discussion

In the present study, it was found that surgeons were better able to extract information from the structured report format than that of the descriptive format. This finding has been reported in a study in which a structured format of reporting was analysed in the case of esophageal carcinoma [5].

The complexity of the prognosis depends on the genetics of the individual. Thus, thorough analysis and examination can result in the development of a personalized treatment plan with a higher benefit-to-risk ratio. A study reported that successful surgical outcomes along with patient satisfaction increased manifold with the use of a structured reporting format [6]. A similar finding was reported in the study, wherein the surgeon's efficiency increased substantially with a structured reporting format. In case of emergency, immediate and efficient intervention can be lifesaving [7].

In the study surgeons reported the extraction of the information from the structured reports was timesaving compared to descriptive reports. Hence it is an accurate and time-efficient method of devising the treatment plan. Structured reports have filled the communication gaps between various disciplines and helped them constantly improve methodology with a quick review of the structured reports. The structured report format is easier to fill and easier to extract significant data. It can improve the overall efficiency of treatment and the satisfaction of the patients [8].

Generalizability
The applicability of structured reporting in improving surgical efficiency, as found in the study, to other settings depends on factors like the similarity of clinical environments, the specific needs of various medical specialties, the technology and training level available, cultural and institutional support, the type of patient care provided, and the regulatory environment. While settings similar to the study's context, particularly fast-paced environments like emergency departments, might see significant benefits, areas with different needs or constraints may not experience the same level of improvement. Further research and pilot programs in diverse settings, coupled with qualitative feedback from healthcare professionals, are essential to gauge the broader applicability and effectiveness of structured reports in different medical contexts.

Conclusion
Scanning computed tomography helps in determining the stage of esophageal carcinoma and devising a treatment plan accordingly. The reporting format plays an important role in the efficient extraction of data and the devising of an accurate treatment plan. The structured report format is found to be superior to the conventional descriptive format in this study.

Limitation
Details in structured report format should have been devised with suggestions of a large number of the format irrespective of the ethnic and racial origin of the patient.

Recommendation
Radiologists should focus on filling each minute and significant detail in a structured report format rather than reporting it in a descriptive format.

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List of abbreviation
TNM- Tumour, Node, Metastasis.
CT- Computed tomography

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No funding received.

Conflict of interest
The authors have no competing interests to declare.

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