



Oesophageal Cancer: A Brief Overview of the Disease and a Case Study in the South African Context

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ABSTRACT

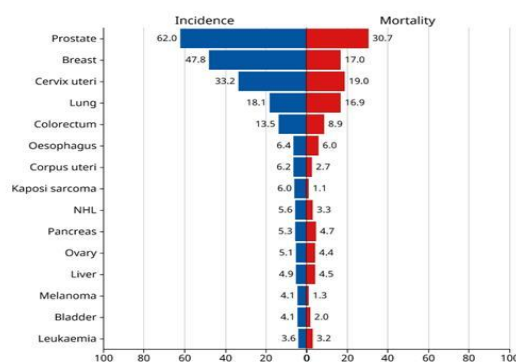
Oesophageal cancer (OC) is a worldwide disease with a high mortality. It is often diagnosed at a late stage of the illness. The sub type OC squamous cell carcinoma (OSCC) is prevalent in South Africa (SA) and endemic in some regions. Treatment is largely palliative and is a combination of surgery, chemotherapy and chemo-radiotherapy. Common complications of (OC) include dysphagia, bleeding and obstruction. Early intervention and symptomatic relief improve health related quality of life (HRQoL), however long-term survival remains dismally poor.

Keywords: OC sub-types, risk factors, late presentation, non-resectable, palliative care

INTRODUCTION

Oesophageal cancer (OC) is the seventh most common cancer worldwide (1) and has one of the highest mortality rates. SA incidence rate is 6.4/100 000 and a mortality rate of 6.0/100 000 (1). OC being the second most common cause of cancer deaths in SA.

Age-Standardized Rate (World) per 100 000, Incidence and Mortality, Both sexes, in 2022
South Africa
(Top 15 cancer sites)



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ASR (World) per 100 000

Fig 1

International Agency
for Research on Cancer
World Health
Organization

China and South Africa both have high prevalence rate of (OSCC) with China having almost half of all new cases globally (2). SA had 3312 new cases of OC and 3025 deaths annually (Globocon 2022) (1). The disease has a preponderance of males with a ratio almost 2:1 (male: female). Two sub - types occur within OC. Oesophageal squamous cell carcinoma (OSCC) the

predominant sub-type in SA (2) and oesophageal adenocarcinoma (OAC) predominant in North America (3).

This presentation of OSCC will discuss risk factors, its management, challengers in late-stage presentation of patients and the need for screening and early detection of the disease. The burden of cancer related death in Africa for the foreseeable future remains challenging. Concluding remarks relate to the genetics of the disease.

CASE STUDY

A 68-year-old male presented with a history of dysphagia, weight loss and burning chest pain of short duration (4-6 weeks). He was a smoker and moderate drinker over much of his adult life. Treatment was symptomatic and he was referred for gastroscopy with worsening dysphagia and little relief of symptoms. Oesophageal biopsy of a lesions in the lower third was in keeping with a moderately differentiated keratinising squamous cell carcinoma. Haematology showed a Haemoglobin (Hb) value of 8.8 (normal 13.8-18.8g/dL), serum albumin of 26 (normal 35-50 g/L), C- Reactive Protein (43.7) normal (<5mg/L).

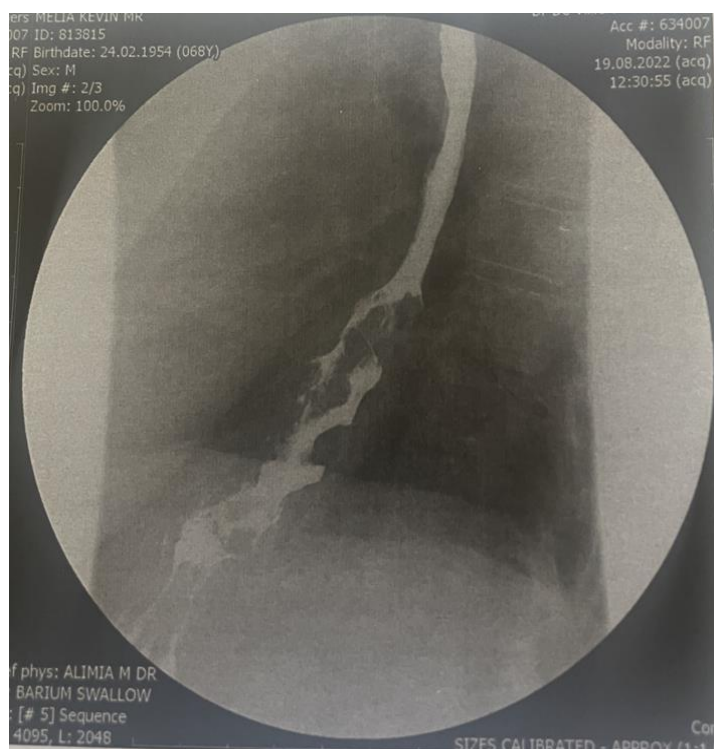


Fig 2: Oesophageal carcinoma on barium swallow

Further work up included a Barium Swallow which had the typical rat tail appearance in the distal oesophagus. CT scan of the chest and abdomen reported a distal oesophageal mass, significant intrathoracic and epigastric/coeliac axis nodes as well as lung nodules in the left upper and right lower lobe. He was a late-stage presentation of OSCC classed as a Stage 4 (T4 N2 M2). Palliative treatment was started aimed at relieving his dysphagia and improving his nutritional status. The patient required repeat blood transfusions due to oesophageal bleeding. Oesophageal stents allow for oral feeding and this was inserted under anaesthesia. He was given additional nutritional support (hyperalimentation) and his physical condition improved.

Chemotherapy cycles were started as per protocol and he received 6 cycles of 5-fluorouracil and cisplatin. Cisplatin is affordable and widely available in SA and used for OC. 5- fluoruracil is an established agent which slows the growth of cancer cells. The patient was transferred to a hospice and subsequently lost to follow up. The time span from diagnoses, work up and treatment was approximately 9 months.

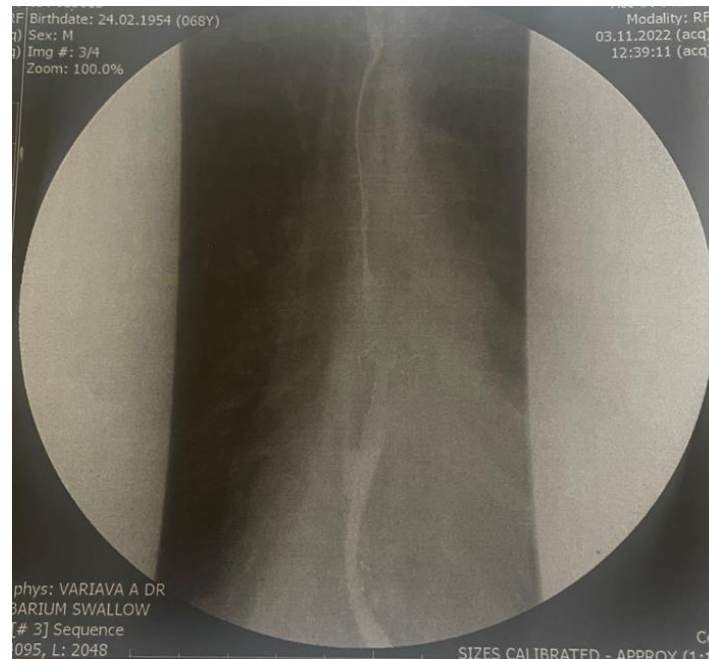


Fig 3: Post insertion of oesophageal stent

DISCUSSION

The TNM (Tumour /Node /Metastasis) classification adopted worldwide aims to improve patient management. It is mainly used for clinical and pathological staging of cancers. The 8th edition (2017) now incorporates pathological prognostic staging for OSCC (4).

The one-year survival of OC for large tumours having nodal involvement and metastasis is poor. The one-year survival rate ranges from 1% -11% (5). Disease which is localised to the oesophagus have better survival rates.

South Africa is within the oesophageal cancer belt in Africa and has a high incidence of oesophageal cancer in the Eastern Cape and KwaZulu Natal. These are designated high-risk areas. Late presentation from onset of symptoms is common. In rural areas it is partly due to patient delay and the subsequent system delays in transferring patients to tertiary institutions for management. In the SA context most patients present with late-stage disease, are malnourished and have hypoalbuminaemia (5).

RISK FACTORS

These are: smoking, alcohol use and a diet low in fresh fruit and vegetables (2)(5). In the Eastern Cape (Transkei) foods contaminated with *Fusarium verticilloides* in addition to environmental toxins may play a part for the high incidence of OC (2). OSCC is typically localised to the upper two thirds of the oesophagus. Oesophageal adenocarcinoma the (US) sub-type is

localised to the lower oesophagus and is associated with Barrett's oesophagus, gastrointestinal-oesophageal reflux and obesity (6). The two sub-types have different biology and the oncological managements protocols differ.

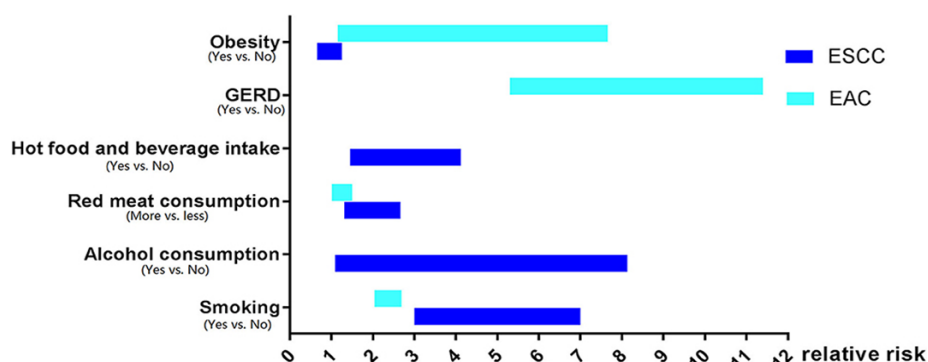


Fig 4 (7)

Graph of Relative risk versus Factors (7). ESCC=OSCC. EAC=OAC.

COMMON COMPLICATION WITH ADVANCING OC (3)

- **Bleeding** in the oesophagus requiring repeat blood transfusions.
- **Obstruction** requiring the use of stents to relieve the obstruction.
- **Pain:** Simple analgesia (Paracetamol) as well as non-opiate analgesic infusions for moderate to severe pain. Intractable pain conditions will require patient control analgesic (PCA) infusions of morphine with PCA pumps. Morphine up to a maximum of 50 mg a day can safely be used.
- Transdermal fentanyl patches allow for pain relief up to 36 hours of a potent opiate.

MANAGEMENT

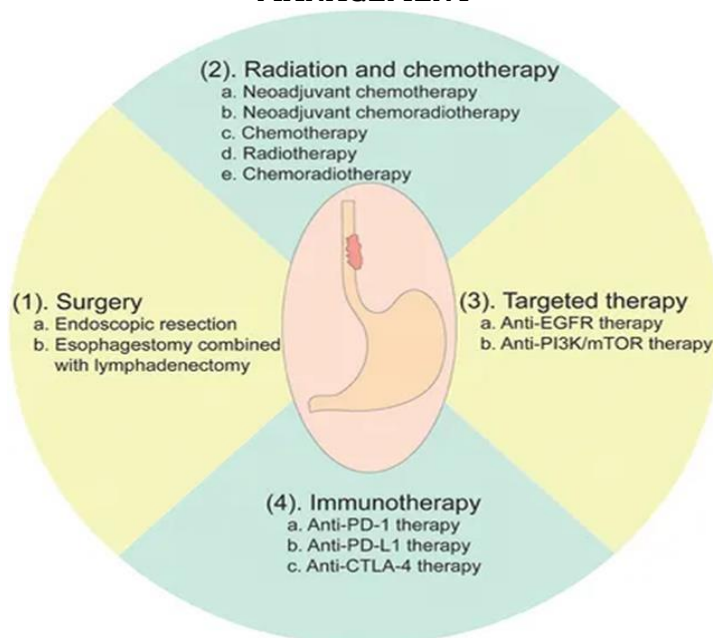


Fig 5 (7)

CURATIVE

Surgical resection is curative in early-stage disease (T1_a) that is localised within the oesophagus mucosa using endoscopic mucosal resection (EMR). The overall survival (OS) and recurrence free survival (RFS) of 100% and 85% over 5 years were reported (Yang, A.J et al (8). The investigators also found that in T1_b stage cancers a multidisciplinary approach was comparable to oesophagectomy in terms of OS and RFS (8). Late presentation with advanced disease remains common in SA (5) and there is little data since the year 2000 on oesophagectomy as a curative procedure for OSCC in SA (5).

With early-stage OC patients who are fit to undergo surgery a multimodal approach is recommended which incorporates peri-operative chemotherapy or neoadjuvant chemo - radiotherapy followed by surgery (6).

The majority of patients and not unique to the SA context have unresectable or metastatic disease at presentation. Treatment regimens with double or more chemotherapeutic agents are needed (6). Palliative bypass surgery to relief obstruction may often be required. Concurrent chemoradiotherapy helps to improve survival outcome (9).

Cancer pain, nausea and vomiting are common and will require anti-emetics and analgesia.

Dysphagia, obstruction and nutritional support are more challenging issues. Plastic endoluminal stents or self-expanding metal stents (SEMS) provide relief from obstruction. Managing dysphagia and other symptoms improve HRQoL and prolong survival. Palliative radiotherapy has been shown to successfully prolong dysphagia progression free survival (DPFS) (10) and enable patients to swallow liquids and maintain a soft diet until death. Intravenous hyperalimentation and enteral feeding further help improve nutritional status, physical conditioning and mental wellbeing.

ONCOLOGICAL THERAPY

A multi model approach involving chemotherapy, radiotherapy, targeted therapy and immunotherapy is used in clinical practice. Protocols may vary depending on institutions and geography. SA is a resource limited society. The Public or State Health sector is severely impacted since oncological therapies are prohibitively expensive and funding restricted. Costs, survival outcomes and improved (HRQoL) are all considerations as to therapeutic availability. Available therapies such as immunotherapy show promise in improving the outlook for OC (8) but is not easily accessible because of cost constraints.

CONCLUSION

The understanding of OC tumorigenesis is being uncovered. Genetic polymorphism (when there are two or more possibilities of a trait on a gene) may play a role in predisposing individuals to OC (2). This may be found in protein coding genes and in non-coding sequences as miRNAs (2). The WHO estimate that by the year 2030 70% of cancer deaths worldwide will occur in low- and middle-income countries where resources for prevention, diagnosis and treatment are few or nonexistent (11). In areas of high incidence screening and early detection of disease is needed. It also requires public awareness and education. China screens patients aged 40-69 years early using endoscopy (the gold standard) in diagnosing OC. This has impacted on the disease and reduced mortality from OSCC (6). There are no programs of note in high incidence

areas in SA. Clinical research of OC is needed in SA to understand the burden of disease, aid early diagnosis and its appropriate management (12)(5). SA may have under reporting of cancer incidence and death. This may be due to skewed analysis and incomplete data collection (11). Cancer is a reportable disease which is based on histo-pathology. Cancer can also be diagnosed radiologically and reported deaths may be attributed to other associated secondary causes (organ failure). Population base registries must take into account all cause cancer deaths from public and private institutions.

Author has no conflict of interest to declare.

Permission granted by patient to publish images.

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