CASE ONE

Short case number: 3_21_1
Category: Gastrointestinal and Hepatobiliary systems
Discipline: Medicine
Setting: General Practice_rural
Topic: Dysphagia & Carcinoma of the oesophagus

Case

David Farrar, a 67 year old sheep farmer, lives 100 km out of town. He has come in today for the sheep sales and to see you, his general practitioner.
David has been having trouble swallowing over the last few weeks. He feel that it is becoming worse, and the food is 'getting stuck' and he needs to 'wash it down with lots of water'. He is eating less because it is also becoming quite painful when he tries to swallow food. A number of people in town today have commented that he has lost weight.

Questions

1. What are the key clinical features that you would assess in taking David's history? What specific features would concern you that the diagnosis is serious?
2. You become concerned that David may have cancer of the oesophagus, what risk factors would you explore with him?
3. What key features on physical examination would support a diagnosis of carcinoma?
4. What diagnostic investigations would you undertake to confirm a cancer of the oesophagus?
5. The town in which you practice has a local hospital with services provided by the 3 general practitioners, specialist physician and radiology services are available 400km away; Outline the potential issues in relation to the assessment and management of David.
6. David is diagnosed with a squamous cell carcinoma [SCC] of the oesophagus. Summarise the key pathological features of squamous cell carcinoma of the oesophagus and outline how it differs from adenocarcinoma of the oesophagus.
7. Summarise how SCC of the oesophagus is staged and outline the principles of management.
8. David's condition deteriorates over the next 3 months and he returns home for palliative care, he wants to remain of the farm. Outline a management plan for David's palliative care including the potential issues in relation to providing the services required.

Suggested reading:

- Kumar P, Clark ML, editors. Kumar & Clark's Clinical Medicine. 8th edition. Edinburgh: Saunders Elsevier; 2012.

ANSWERS

1. David is describing symptoms of dysphagia (difficulty swallowing) and odynophagia (painful swallowing).

Further aspects of the history need to be elicited

- What was the initial nature of the trouble swallowing and is it related to liquids as well as solids?
- What is the duration of symptoms?
- Are they progressive or intermittent?
- Have there been similar episodes in the past and if so how were they managed?
- Were there clinical features suggesting gastro-oesophageal reflux disease (GORD) such as heartburn (presence of a burning pain or discomfort in the retrosternal area) or *waterbrash* (regurgitation of 'acid' into the mouth) or a long history of antacid intake?
- Are there factors predisposing to GORD - obesity, smoking and alcohol history, ingestion of medications that predispose to reflux (caffeine, nitrates, antimuscarinic, calcium-channel blockers) or to direct oesophageal mucosal irritation (salicylates, NSAIDs), poor eating habits (irregular meals, large, especially fatty meals late at night, high intake of spicy foods) .
- The actual course of the dysphagia - A progressive course suggests a structural obstruction such as a stricture from chronic reflux oesophagitis or a malignancy or achalasia (in which the distal sphincter remains closed); an intermittent course suggests some form of oesophageal spasm or a Schatzki ring. Curiously, if the dysphagia tends to be worse with liquids, then achalasia is more likely.

<u>Causes of dysphagia</u>

MECHANICAL OBSTRUCTION

*Intrinsic (*within oesophagus). Of the following, the first two are by far the commonest.

- Reflux oesophagitis with stricture formation
- Carcinoma of oesophagus or gastric cardia
- Pharyngeal or oesophageal web
- Pharyngeal pouch (Zenker's diverticulum) – strictly speaking, it is a pharyngeal lesion but it extends down and affects upper oesophageal function
- Schatzki ring (circular thickening of the mucosa at the distal squamocolumnar junction – despite its structure, symptoms are often intermittent)
- Foreign body

Extrinsic (outside oesophagus)

- Goitre with retrosternal extension
- Mediastinal tumours, bronchial carcinoma, vascular compression (rare)

NEUROMUSCULAR MOTILITY DISORDERS

- Diffuse oesophageal spasm (easily the commonest cause – it is commonest in the elderly where it is sometimes called presbyoesophagus)
- Achalasia - unknown aetiology - characterized by
    - aperistalsis of the body of the oesophagus
    - failure of relaxation of the lower oesophageal sphincter

- Eosinophilic oesophagitis - a chronic, immune/antigen-mediated, oesophageal dysmotility with a characteristic eosinophil-predominant inflammation, presenting most commonly in young male adults with severe episodes of painful dysphagia.
- Scleroderma
- Chagas' disease (a rare parasitic S.American condition causing features similar to achalasia)

Age >50
Recent sudden onset
Painful swallowing.

CONCERNING FEATURES (RED FLAGS)

Short history (<6 months) Weight loss
Haematemesis (or melaena)

2. Oesophageal cancer is the fifth most common cancer seen throughout the world. Approximately 40% occur in the middle third of the oesophagus and are squamous carcinomas. Adenocarcinomas (approx. 45%) occur in the lower third of the oesophagus and at the cardia. Tumours of the upper third are rare (15%). It occurs mainly in those aged 60 – 70 years, although it is now occurring in younger age groups. However, the incidence of squamous carcinoma is slowly falling while that of adenocarcinoma is rapidly rising.

#1 Adenocarcinoma
#2 SCC

RISK FACTORS FOR CANCER OF THE OESOPHAGUS

Squamous cell carcinoma	*Adenocarcinoma*
Tobacco smoking	Long standing GORD
High alcohol intake, especially spirits	Barrett's oesophagus
Plummer-Vinson syndrome (dysphagia, Fe def anaemia, oesophageal web)	Tobacco smoking
Achalasia	Obesity
Corrosive strictures	Breast cancer treated with radiotherapy
Coeliac disease	
Breast cancer treated with radiotherapy	
Tylosis*	
Diet – possible protective effect of dietary carotenoids, vitamin B6 and Vit.C	

Intestinal metaplasia of oesophageal mucosa due to chronic reflux.

Tensed up muscles of lower oesophagus preventing food going into stomach

(liquids will be harder to swallow than solids.)

*Tylosis is an autosomal dominant condition with hyperkeratosis of the palms and soles.

Exam features.

3. Weight loss, cachexia, pallor, lymphadenopathy, hepatomegaly (metastases) hoarse voice (recurrent laryngeal nerve involvement) and persisting cough (direct invasion or aspiration) are all possible. However, signs are often absent.

Ix:

B
I - Endoscopy, Biopsy, Endoscopic Ultrasound, CT, PET Scan.
M
B
O

4. Endoscopy (gastroscopy, oesophagasoscopy) provides histological or cytological proof of carcinoma in more than 90% of cases. This answers what is the most significant clinical question in most cases, namely, is there an actual stricture and if so, is it benign or malignant? It can often be combined with immediate therapy such as dilatation of a stricture or palliation of a malignant obstruction by insertion of a stent.
Other investigations that are useful in full evaluation include:

- Full blood count – possible anaemia - iron deficiency or chronic disease
- LFTs (hepatic metastases)
- Coagulation studies (hepatic insufficiency or nutritional deficiencies)

- Barium swallow – a simple, sensitive test that often easily demonstrates motility problems or a neoplasm or the relatively uncommon condition of pharyngeal diverticulum. Its major drawback is that it does not provide histology (by biopsy).
- CT scan of the chest and abdomen will show the volume of the tumour, local invasion and lymph involvement (M staging).
- Endoscopic ultrasound has an accuracy rate of 90% for assessing the depth of tumour and infiltration (T staging) and 80% for staging lymph node involvement (N staging).
- Bronchoscopy may be indicated in cancers of the middle and upper third of the oesophagus to exclude invasion of the trachea or bronchi.
- Bone scan is indicated in patients with complaints suggestive of bone metastases.
- Positron emission tomography (PET) scanning can show metastases (hypermetabolic foci of disease activity).

5. David will need to travel to where the available specialists and services to make the diagnosis are located. With regard to further management, either the nearest appropriate services or if he has family in an alternative major centre the latter may be more suitable as the treatment could be prolonged. Initially David will need to undertake some or all of the investigations as outlined above for diagnosis and staging. Depending on the results he would require either potentially curative therapy with surgery and adjuvant chemotherapy or palliative care.

6. Squamous cell carcinoma (SCC) occurs most commonly in the middle third of the oesophagus with cigarette smoking and chronic alcohol exposure being the most common aetiological factors in Western cultures. Monotonous diets very high in cereals and *N*-nitroso compounds in preserved food, possibly increase the risk. Diets high in carotenoids and Vit. C (vegetables and fruit) possibly decrease the risk. In contrast to adenocarcinoma, the incidence of SCC is decreasing.
Adenocarcinomas occur in the lower third of the oesophagus and cardia arising in the columnar-lined epithelium. Gastro-oesophageal reflux disease (GORD) and Barrett's oesophagus are common pre-disposing factors.

7. Staging. The TNM staging system is used. Extent of tumour invasion (T), presence of tumour in lymph nodes (N) or metastases (M) are combined into stage categories from 0 (Tis, N0, M0) to IV (any T, any N, M1). Management is determined by staging with surgery providing the best chance of a cure where imaging has shown that the tumour has not infiltrated outside the oesophageal wall. Five year survival with stage 1 is 80%, stage II is 30%, stage III is 18% and stage IV is 4 %.
Survival rates are the same for either SCC or adenocarcinoma across the various stages.

8. Therapy.
- Surgery involves an oesophagectomy either via a transhiatal or transthoracic approach.
- chemotherapy – as a single modality has limited benefit but used in combination with radiotherapy is more effective. Agents with promising response rates and tolerable toxicity are cisplatin, 5-fluorouracil (5-FU), paclitaxel and anthracyclines.
- radiotherapy
- photodynamic therapy (PDT) refers to the administration of photosensitizing chromophores, which are selectively retained by dysplastic malignant tissue. Light is delivered to the area where the photons are absorbed by the photosensitizer. This then becomes photoexcited and transfers its energy to a

chemical substrate that causes biologic damage to the abnormal tissue. A drawback is the formation of oesophageal strictures in 1/3 of patients.

- Palliation: (a) endoscopic laser therapy can help achieve temporary relief of dysphagia in up to 70% of patients. Multiple sessions are usually required to keep the oesophageal lumen open. (b) Endoscopic stent insertion (expandable metallic stents).

David's palliative care management is dependent on the treatment he has already received. Prior to returning to the farm he could have a metallic stent inserted to assist in the passage of liquids and soft foods. He would benefit from assessment by and advice from a dietitian to optimize nutrition and consider the availability of nutritional supplements through palliative care. There would need to be close communication between David's family, his GP and the palliative care team (or nurse as the case may be) with regard to his pain relief, nutrition, bowel care etc.

An advanced care directive needs to be discussed with David to determine the level of pain relief and future care that he desires. The presence of a support network for the family needs to be examined.

References.

- Kumar P, Clarke M. Clinical Medicine, 6th Ed. Elsevier 2005. Chap 6 pps 273- 281
- Talley and O'Connor Clinical examination 5th Ed. Chap 5
- Esophageal cancer eMedicine. Author Piero Marco Fisichella, updated May 7, 2009.

o w/ dysphagia
. Ask about → Needing to chop up food v/small
→ More issues with solids & Liquids

on Ex → . Ar thyroid goitre?
. Supraclavicular lymph nodes.