1

Polyps of the Oesophagus

Oesophageal polyps
Normal structure
Glycogenic acanthosis
Heterotopic sebaceous glands
Squamous cell papillomas
Viral warts
Polypoidal dysplasia
Inflammatory polyps
Fibrous polyps
Leiomyomas
Granular cell tumours
Polypoidal squamous cell carcinomas
Polypoidal adenocarcinoma
Malignant melanoma
Neurogenic tumours

K Geboes

OESOPHAGEAL POLYPS

Introduction

Whilst oesophageal cancer remains one of the leading causes of cancer mortality, oesophageal polyps are relatively unusual, compared with polyps in other parts of the gastrointestinal tract. From both a clinical and a pathological point of view, polyps of the oesophagus may be divided into two main groups, intramural and intraluminal growths. The vast majority of the intramural tumours are stromal tumours. They are made up of variable proportions of smooth muscle and fibrous tissue. Such intraluminal polypoidal growths usually originate in the submucosa and are covered by normal squamous epithelium. Endoscopic biopsies usually fail to reveal the nature of both intramural and intraluminal tumours except for those lesions that have originated from the epithelium. Oesophageal cancer rarely presents itself as a polypoid lesion.

NORMAL STRUCTURE

The oesophagus can be grossly divided into four segments. The distances given are measured from the incisor teeth.

- The cervical oesophagus extends from the cricoid cartilage (15 cm) to the level of the thoracic inlet (suprasternal notch) (18 cm).
- The upper thoracic segment comprises that part between the thoracic inlet and the tracheal bifurcation (24 cm).
- The mid-thoracic segment extends to the level of the eighth thoracic vertebra (32 cm).
- The lower thoracic segment extends to the junction with the stomach (40 cm) and includes the abdominal oesophagus.

The International Union against Cancer proposed this division into four segments for the purposes of classification, staging and reporting of oesophageal malignancy. In anatomical textbooks the oesophagus is divided into three segments: the cervical oesophagus extending to the level of T2–T3, the thoracic and the abdominal oesophagus. The anatomical landmarks supporting this division are not as well defined. Moreover, the anatomical regions for the oesophagus are not fixed: in fact they merge into each other and vary with age.[1,2]

The gastro-oesophageal junction can be defined anatomically, microscopically and physiologically. Endoscopic landmarks are the upper margin of the diaphragmatic indentation and the proximal margin of the gastric folds. The mucosal junction does not correspond to the muscular junction as defined by the proximal edge of the gastric folds[3] and normally lies within 2 cm of the muscular junction. Endoscopically the squamocolumnar junction is easily recognisable as an irregular line: the Z-line. The gastric mucosa is red-orange in colour and the oesophageal mucosa is pale with fine blood vessels.

The oesophageal mucosa

Histologically, the oesophageal mucosa consists of non-keratinising, stratified squamous epithelium, lamina propria and muscularis mucosae (Fig 1.1). The deep border of the epithelium is irregular due to the presence of transitory folds and high conical papillae of highly vascularised connective tissue. The epithelium can be divided into several compartments or zones: the basal zone, the intermediate (or prickle cell) zone and the superficial zone. This division corresponds with the processes of cell renewal, proliferation, differentiation (or maturation) and cell death that occur within the epithelium.

The basal zone is composed of one layer at the junction with the underlying stroma (in which the proliferative compartment resides) and two or three layers above containing immature cells. A periodic acid-Schiff (PAS) stain will demonstrate the upper extent of these glycogen-poor basal cells. Above the basal zone the intermediate and superficial layers consist of glycogen-rich cells that become progressively flatter towards the surface. In the basal cell layer melanocytes and endocrine cells may be present. Non-epithelial cells that are normally present within the epithelium are lymphocytes, Langerhans cells and occasional basophils.[3–5]

At the lower end of the oesophagus there is a sudden change from stratified squamous epithelium to mucin-secreting columnar epithelium.

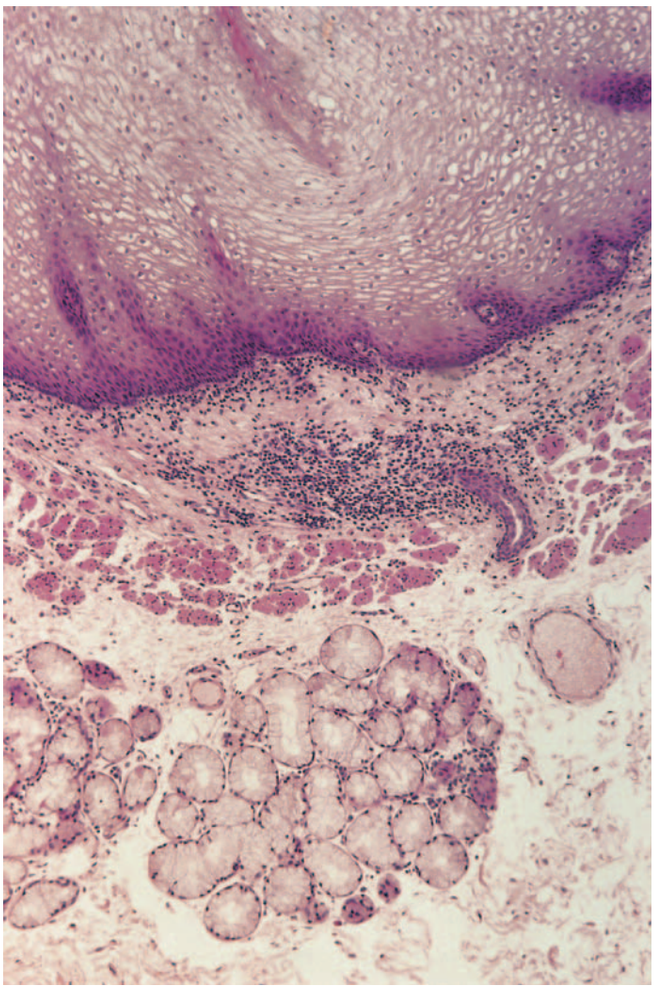


Figure 1.1 – Section through the upper layers of the oesophagus showing the typical non-keratinised squamous epithelium and the subjacent submucosa containing an oesophageal mucus-secreting gland.

Oesophageal glands

Cardiac-type glands are found in 6–16% of oesophagi. They are diffusely scattered in the lamina propria through all levels of the oesophagus and open directly into the lumen through ducts lined by gastric foveolar-like cells. They have been considered to be normal constituents, embryological remnants and heterotopias.

Located in the submucosa are typical tubulo-alveolar glands that resemble salivary glands. Each gland consists of a number of lobules (composed of acini and ducts) and is connected to the mucosal surface by a duct, which is roughly vertical. The duct is lined by stratified epithelium near the oesophageal lumen and by a flattened cuboidal epithelium at the junction with the acini. The acini are composed of mucus (chief) and serous (subsidiary) secreting cells as well as myoepithelial cells.[5]

GLYCOGENIC ACANTHOSIS

Prevalence

With the combined use of endoscopy and barium studies, glycogenic acanthosis can be seen in 25% of the adult population.[6,7] It can also be seen in up to 15% of upper endoscopies.

Endoscopic appearance

- They appear to be plaque-like and occur predominantly in the lower oesophagus.
- They are slightly elevated, white, round or oval, smooth surfaced lesions (Fig 1.2).
- Most lesions are under 5 mm in diameter, although lesions up to 1.5 cm in diameter have been reported.
- If extensive, the lesions may coalesce to form larger plaques (Fig 1.3). These plaques show no associated hyperaemia or oedema.

Microscopic features

There is usually thickening of the epithelium with elongation of the papillae due to hypertrophy of squamous cells, in particular those of the intermediate layer (Fig 1.4). The cellular enlargement is caused by the accumulation of abundant glycogen. This gives the cells their characteristic pale or vacuolated appearance. There is no cellular atypia, keratosis or associated inflammation. They should not be confused with moniliasis.

Biological behaviour and associated conditions

They should be considered as a variant of normal and are asymptomatic. There is no defined relationship with infection or malignancy.

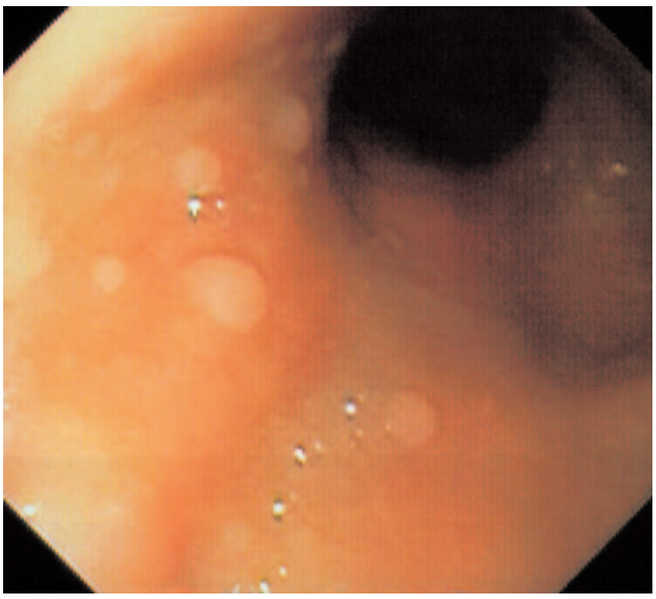


Figure 1.2 – Glycogenic acanthosis in the oesophagus commonly appears as shallow, white, round, smooth discrete elevations.

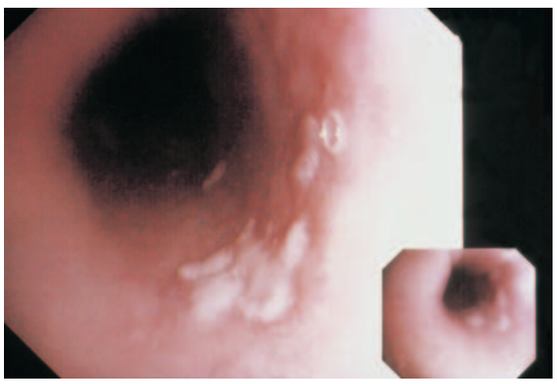


Figure 1.3 – In extensive glycogenic acanthosis the lesions may coalesce to form larger plaques.

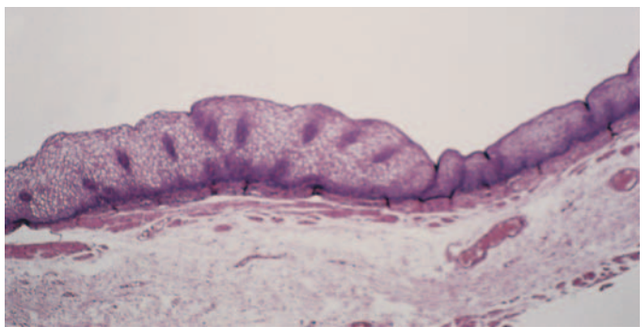


Figure 1.4 – A case of glycogenic acanthosis. Note the regular thickening of the epithelium due to the presence of enlarged cells, with glycogen rich clear cytoplasm. There is no cellular atypia.

Management

No specific treatment is required.

HETEROTOPIC SEBACEOUS GLANDS

Prevalence

These are rare lesions. In one autopsy series they were found at different levels in 2% of the cases.[8]

Endoscopic appearance

- They appear as yellow-grey, plaque-like, oval and rounded lesions, 1–5 mm in dimension, sometimes there are several present (Fig 1.5).
- They should be distinguished from the more common glycogenic acanthosis.

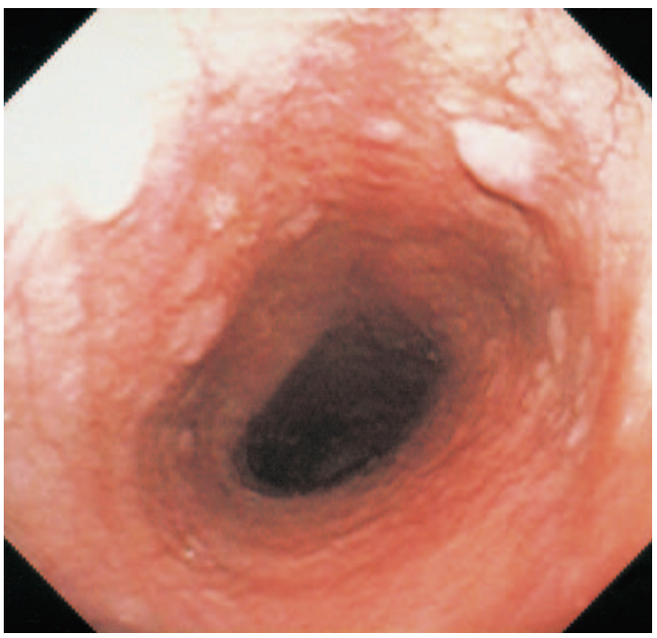


Figure 1.5 – Heterotopic sebaceous glands can appear as grey, plaque-like, slightly elevated lesions. Sometimes there are several present as shown in this case.

Microscopic feature

These lesions are characterised by the presence of mature sebaceous glands deep in the oesophageal mucosa.

Biological behaviour and associated conditions

They are invariably benign and not associated with defined conditions.

Management

No specific treatment required.

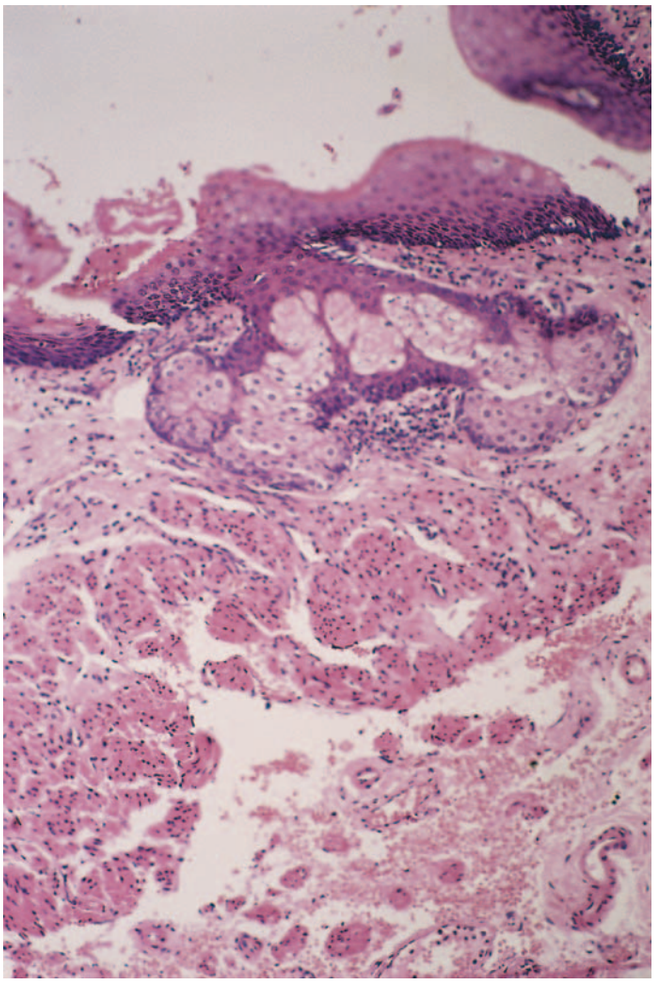


Figure 1.6 – Low power photograph showing mature sebaceous glands deep in the oesophageal epithelium.

SQUAMOUS CELL PAPILLOMAS

Prevalence

These are rare lesions with an estimated prevalence of 14:100 000.[9] Only two lesions were found in series of 19 982 post-mortems and three and six cases were reported from series with 6157 and 14 900 endoscopic examinations, respectively.[10,11]

The age range of patients with papilloma varies from 14 to 78, with a mean age of 54 years. About 75% of the reported cases have been in males. The lesion is less common in children.[12] A giant form and a form of oesophageal papillomatosis have been described but both are extremely rare.[13]

Endoscopic appearance

- Squamous cell papillomas may be located in any region of the oesophagus, but there is a strong predilection for the distal oesophagus.
- They appear as smooth, round, pink, sharply demarcated, sessile tumours (Fig 1.7). These vary in size from 0.4 to 1.5 cm.
- They are generally single but multiple papillomata may occur (Fig 1.8).
- A variant of oesophageal papillomatosis is characterised by the occurrence of multiple confluent papillomas with a verrucous pattern (resembling verrucous carcinoma) (Fig 1.9).

Microscopic features

The papillary architecture consists of finger-like projections of delicate fibrous tissue covered by acanthotic stratified squamous epithelium (Fig 1.10). The epithelium is organised in the same manner as normal oesophageal mucosa and shows the normal differentiation from the basal to the surface layers and lacks atypia.

In oesophageal papillomatosis, atypia and inflammatory features may be present.

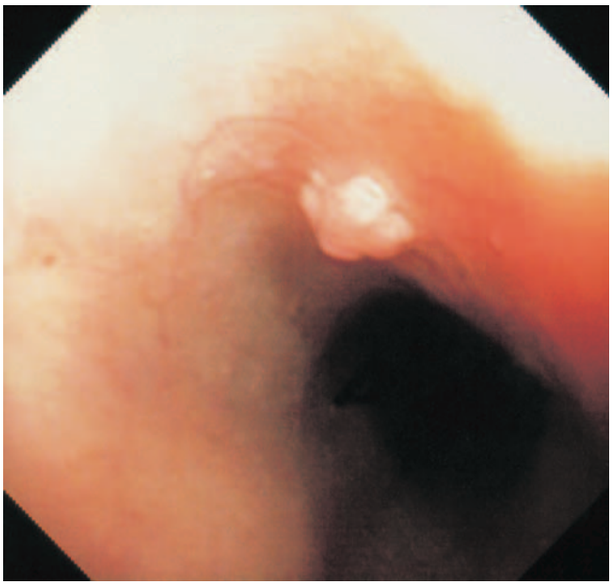


Figure 1.7 – Endoscopic appearance of a solitary small squamous papilloma of the oesophagus. The surface is slightly irregular. The lesion is well demarcated.

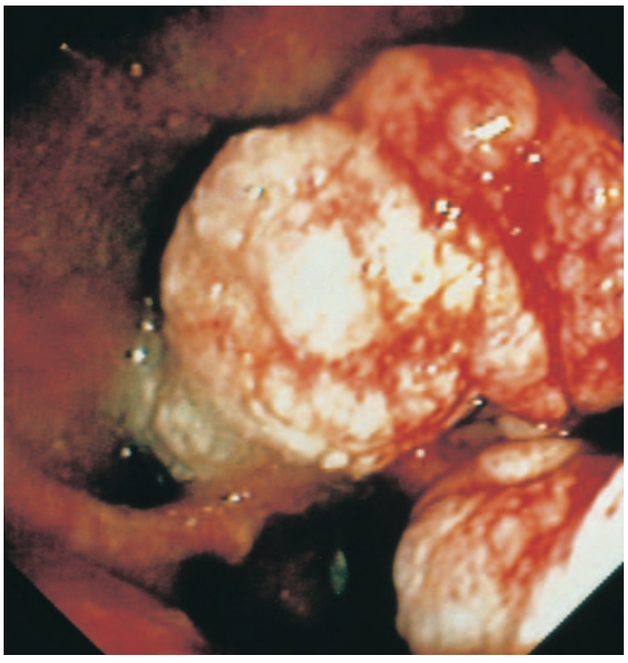


Figure 1.9 – Endoscopic picture of a (giant) oesophageal papillomatosis, a rare condition, characterised by the presence of a large sessile lesion.

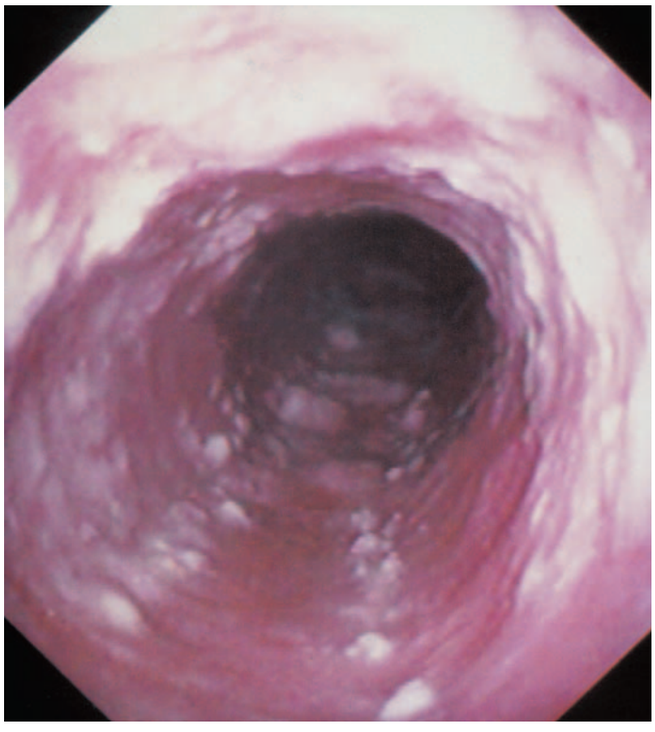


Figure 1.8 – Squamous papilloma of the oesophagus is usually a single lesion. Occasionally, multiple lesions are present as seen in this case.

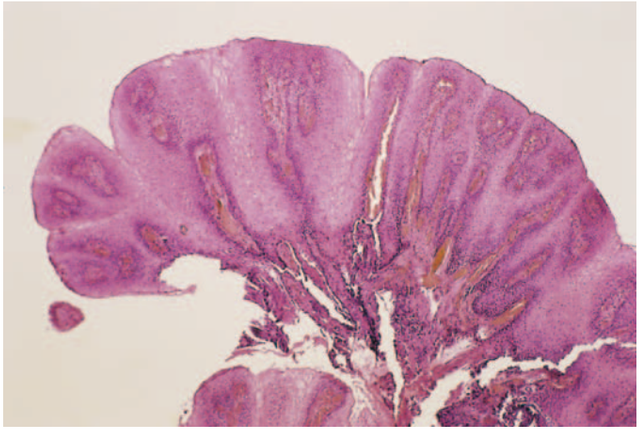


Figure 1.10 – Low power photograph showing the fingerlike projections of the fibrovascular core of a squamous oesophageal papilloma. The surface epithelium is mature and lacks cellular atypia.

Biological behaviour and associated conditions

There is no evidence of an association with malignancy.

The human papilloma virus (HPV) antigen (mainly types 16 and 18) has been identified in up to 50% of tissues tested using immunoperoxidase and by *in situ* hybridisation, but is less common in other series.[14,15] Papillomatosis can recur and may be associated with malignancy. It may however differ aetiologically from the solitary small squamous cell papilloma.[16] The distinction between papillomatosis and viral wart is unclear. Aetiologically there are probably differences because of the association with HPV or even the type of HPV involved. Some of the small papillomas or polypoid lesions in the distal oesophagus are associated with gastro-oesophageal reflux disease. Furthermore, similar macroscopic lesions can be identified in asymptomatic patients.

It appears that what is observed endoscopically as a small papillomatous lesion in the distal oesophagus is a lesion with several different possible aetiologies, such as viral or reflux disease. The precise aetiology cannot always be established.

Rare forms of oesophageal papillomatosis

Papillomatosis of the oesophagus is reportedly associated with a rare congenital syndrome (Goltz–Gorlin syndrome). This consists of congenital poikiloderma with keratoconus and skeletal and tooth defects.[17] Patients with acanthosis nigricans may, rarely, develop a very fine papilloma-like nodularity of the oesophagus.

Management

Endoscopic resection is an adequate treatment. Recurrence is not reported for small squamous cell papillomas.

Papillomatosis may be treated by local endoscopic injection with anti-viral drugs.[18]

VIRAL WARTS

Synonyms

Condyloma.

Prevalence

Squamous cell papillomas associated with human papilloma virus are uncommon. They occur mainly in children and are similar to, and usually associated with, similar lesions in the larynx, the trachea and occasionally in the bronchi.[19]

Endoscopic appearance

- Lesions vary from a few millimetres to 1 cm in diameter.
- They appear as pale, broad-based excrescences.
- They are often multiple and usually found in the mid-oesophagus although the entire oesophagus may be affected.[19]

Microscopic features

These lesions are essentially made up of a fibrovascular core of lamina propria with a hyperplastic overlying epithelium lacking atypia and keratinisation (Fig 1.11).

Koilocytes may or may not be present.

The distinction between squamous papilloma and squamous papilloma associated with the human papilloma virus (viral wart) is not always clear.

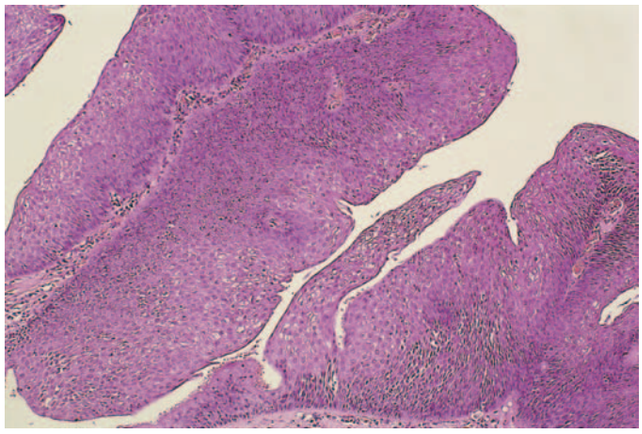
Biological behaviour and associated conditions

They are usually found incidentally.

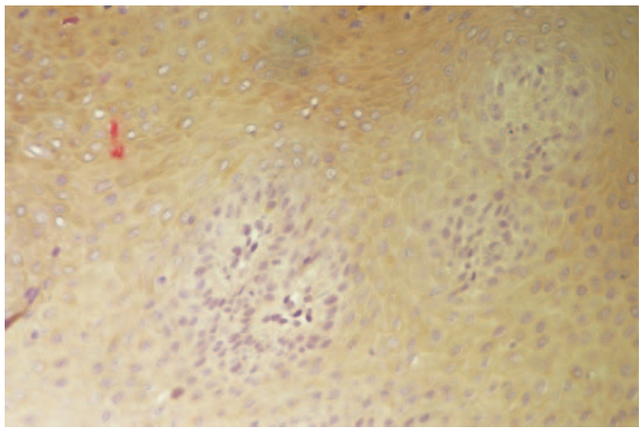
Spontaneous resolution may occur and in general, squamous papillomas behave in a benign manner.

Management

Endoscopic removal is sufficient as treatment. No follow-up is needed.



A



B

Figure 1.11 – (A) A photomicrograph of a viral wart. There is a fibrovascular core covered by a thickened papillary squamous layer. Koilocytosis. (B) In situ hybridisation shows a positive reaction for HPV 6–11.

POLYPOIDAL DYSPLASIA

Synonyms

Adenomatous neoplasm, adenoma, adenomatous changes, adenomatous hyperplasia, nodular dysplasia, dysplasia associated lesion or mass (DALM).

Prevalence

Adenomas with the morphological features of a tubular or villous adenoma are rarely seen in the distal oesophagus. In fact the only convincing examples that have been documented have occurred in the columnar-lined (Barrett's) oesophagus.[20–22]

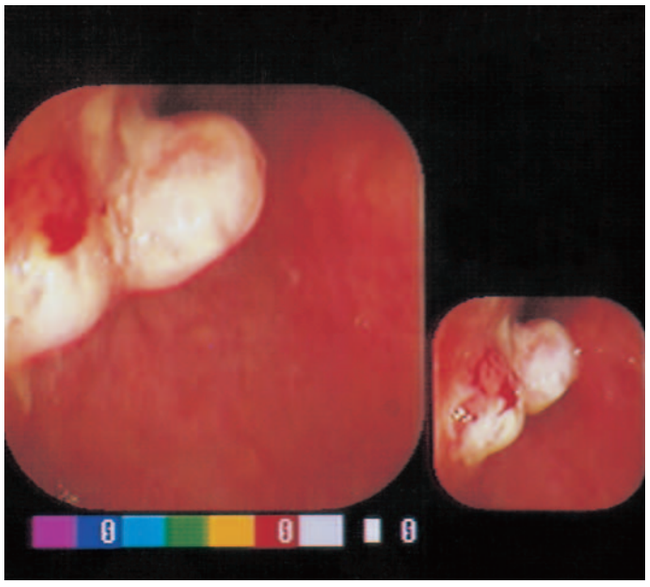


Figure 1.12 – An endoscopic picture of a polypoidal lesion arising in a background of Barrett's oesophagus.

In general we believe that the term adenoma, as applied to the oesophagus, is a misnomer. Such lesions are best designated polypoid dysplasia in columnar lined (Barrett's) oesophagus.

Endoscopic appearance

- These lesions usually appear as irregular and elevated masses (Fig 1.12).
- The size varies from a few millimetres to 1 cm in diameter, occasionally larger.

Microscopic features

These lesions can appear as rather polypoid areas of glandular metaplasia and dysplasia in Barrett's oesophagus (Fig 1.13).

The surface and glands are lined by a single layer of columnar cells. These cells show features of specialised intestinal epithelium, sometimes in a mosaic with other types of metaplasia (as is commonly seen in Barrett's oesophagus).

The columnar cells may show features of dysplasia with loss of mucin secretion, the presence of elongated, basally

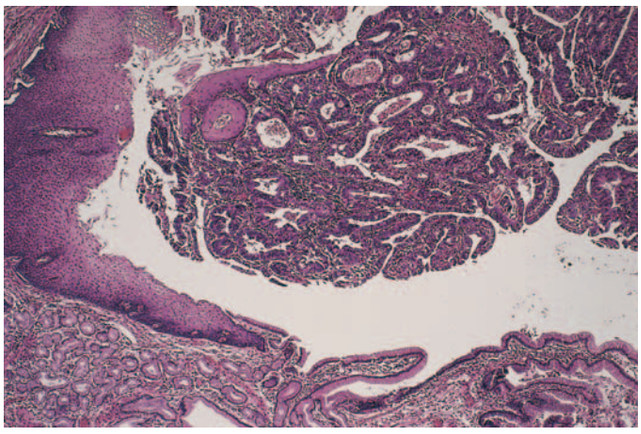


Figure 1.13 – Microscopy of an oesophageal glandular polypoid lesion occurring in Barrett's oesophagus with features of an adenoma.

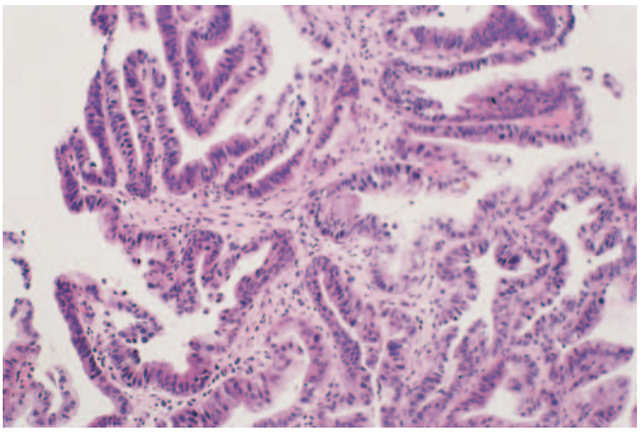


Figure 1.14 – This shows a case of villous adenomatous polypoidal dysplasia in Barrett's oesophagus. Note the adenomatous configuration of the lesion and the severe cellular atypia of the columnar epithelium.

located nuclei and a tendency to palisading (Fig 1.14). Dysplastic areas can be mixed with hyperplastic appearing glands.

It should be noted that rare examples of submucosal adenomas have also been reported.[23]

Biological behaviour and associated conditions

The presence of a mass often implies an advanced stage of dysplasia that has a greater probability of being associated with invasive carcinoma.

Management

Endoscopic resection may be sufficient, provided that microscopic examination reveals no foci of invasive changes.

INFLAMMATORY POLYPS

Synonyms

Oesophagogastric polyp, inflammatory reflux polyp, oesophagogastric polyp-fold complex.

Prevalence

Not precisely known.

Endoscopic appearance

- Characteristically these appear as a solitary small sessile polypoid lesion occurring at or near the gastro-oesophageal junction (Fig 1.15). Less commonly they can appear as multiple small sessile polypoid lesions.
- Endoscopically the lesions are round.
- They vary from 5–20 mm in diameter, with a smooth and erythematous surface, often with a small superficial erosion on the top.
- Endoscopic features of oesophagitis are often found.
- There may be a prominent fold of mucosa (a sentinel fold) leading up to the polyp from the gastro-oesophageal junction.[24–26]

Microscopic features

The typical features are a mixture of granulation tissue and inflammation of the lamina propria covered by squamous epithelium showing features of basal hyperplasia, with varying erosion of the epithelium and often marked active inflammatory cell infiltrate (Fig 1.16). Sometimes the polyp

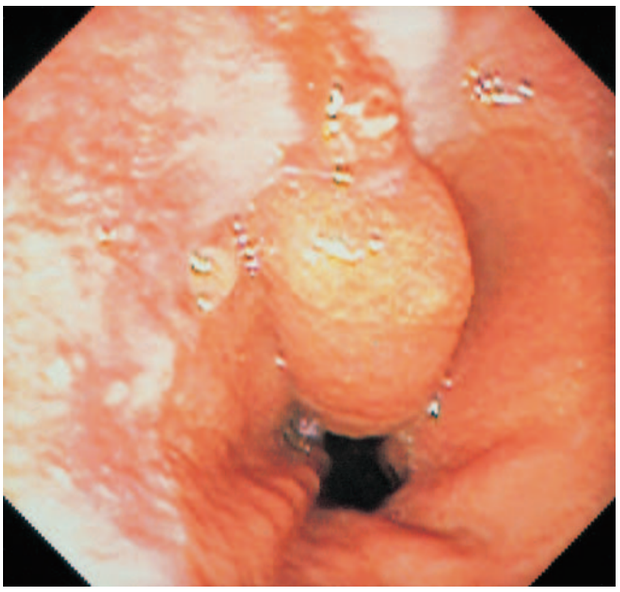


Figure 1.15 – Endoscopic picture of an oesophageal inflammatory polyp. The lesion is usually round with a smooth, slightly irregular and erythematous surface and is usually seen at the lower end of the oesophagus.

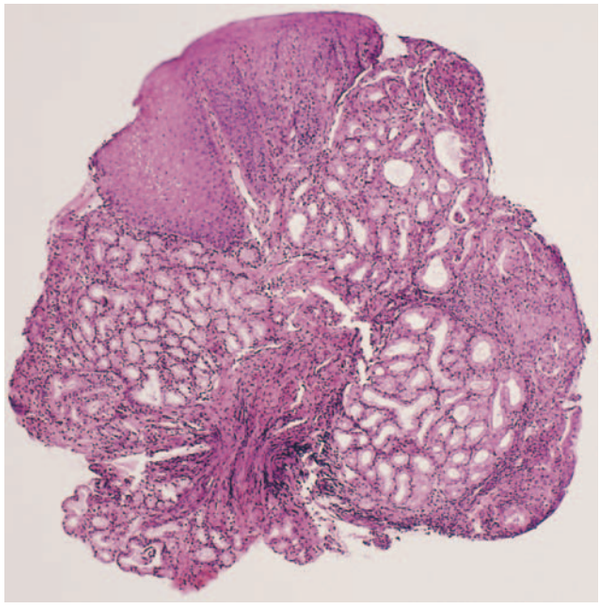


Figure 1.16 – A case of an inflammatory polyp of the oesophagus, which is lined in part by granulation tissue, in part by orderly squamous epithelium and in part by columnar epithelium.

is partially covered by junctional columnar epithelium. The adjacent oesophageal mucosa is usually inflamed.

Biological behaviour and associated conditions

Inflammatory polyps develop mostly in patients with a hiatus hernia and/or with reflux oesophagitis. They can also occur in patients without such a history and in patients with other less common causes of oesophagitis.[27]

They are entirely benign. In the past, several of these have been erroneously reported as squamous cell papilloma.[28]

Management

No treatment is needed, except for the associated oesophagitis.

FIBROUS POLYPS

Synonyms

Fibrovascular polyp, fibroma, fibromyxoma, fibrolipoma, lipoma, pedunculated lipoma.

Prevalence

These are rare lesions. In larger autopsy series the incidence of benign non-epithelial oesophageal tumours is usually less than 0.25%. In some series the incidence of fibrovascular polyps is second to smooth muscle tumours. It is most likely that inflammatory polyps are not included in such studies because they are too small and may not be visible at post-mortem. The majority of patients with fibrous polyps are middle-aged to elderly with males being more frequently affected.

Endoscopic and gross appearance

- Smooth surfaced elongated intraluminal masses that are usually more or less pedunculated (Fig 1.17).
- The majority arise in the upper oesophagus, in the region of the cricoid.