

RARE ASSOCIATION BETWEEN CLUBBING AND ESOPHAGEAL
SQUAMOUS CELL CARCINOMA

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Background

We present a case of lower oesophageal squamous cell carcinoma accompanied by bilateral finger and toe clubbing, without evidence of distant spread. This case serves to demonstrate that this presentation, although rarely mentioned in the literature, can occur. Digital clubbing is a well-documented finding in various cardiac and pulmonary conditions, but is less commonly observed in liver and inflammatory bowel diseases. Patients usually present towards the end of the disease progression when they have esophageal cancer.

Keywords: *squamous cell carcinoma; Clubbing; Oesophageal*

SUMMARY

A 39-year-old man presented with a gradually worsening difficulty in swallowing that had been occurring for the past 2 months. During the examination, the doctor noticed the presence of digital clubbing. Further investigation using CT images (figure 1) revealed the existence of a mass in the lower part of the oesophagus. An OGD procedure was performed, and a biopsy was taken from the lower oesophageal mass. The results of the histopathology examination indicated the presence of moderately differentiated squamous cell carcinoma in the lower oesophagus (figure 2). Due to the patient's poor physical condition for surgical removal, he was referred to the oncology department. The oncology team decided to initiate a treatment plan involving chemoradiation. Unfortunately, the patient was dying after he received the first session of chemotherapy.

CASE PRESENTATION

A 39-year-old man who had no documented long-term health problems came with increasing dysphagia two months earlier. Initially, it began with difficulty swallowing solid food and gradually progressed to include liquids. Additionally, he experienced significant weight loss. No other symptoms were reported, and he was a non-smoker. Overall assessment of systems and his medical and surgical histories were unremarkable, and there was no family history of a similar condition. The patient was examined and found to be cognizant, vigilant, and well-groomed. The patient's vital signs were within the normal range. Systemic examinations showed no abnormalities, except for the observation of digital clubbing in both hands (figure 4) and feet (figure 5).

INVESTIGATIONS

Standard laboratory tests showed: Leukocytes $10.5 \times 10^9/L$, hemoglobin 12.5 g/dL, hematocrit 38.9 %, and platelets $207 \times 10^9/L$. Liver Function Test (LFT), Renal Function Test (RFT), and coagulation profile were all within normal limits. The serology panel for liver infection showed negative results. His hormonal profile indicated that Follicular-Stimulating Hormone (FSH) was at 1.5 unit (N 1.0-14.1), Growth Hormone (GH) at 0.8 (N 0.07-2.1), and Thyroid Stimulating Hormone (TSH) at 0.59 (N 0.27-4.2), all within normal ranges. Rheumatoid factor levels were also normal. Both the Chest X-ray and the hand and foot X-ray did not display any bone lesions or pathology. A Computed Tomography (CT) scan revealed a lower oesophageal tumour with diffuse thickening of the gastric wall (figure 1), but no masses, active infiltrating lesions, consolidations, or atelectasis were observed in both lung fields. A constricted area was detected at a distance of 20 cm during the upper gastrointestinal endoscopy, which was successfully dilated. Additionally, at a distance of 32 cm, a visible mass in the esophagus was observed (figure 2). Several biopsies were performed to examine the tissue under a microscope, and the findings confirmed the presence of squamous cell carcinoma (figure 3). Furthermore, abdominal ultrasonography indicated no indications of liver metastasis.

TREATMENT

Chemoradiotherapy

OUTCOME AND FOLLOW-UP

The patient was dying after he received his first session of chemotherapy.

DISCUSSION

The etiology of digital clubbing remains uncertain, with several theories proposed to explain its development. One hypothesis suggests that hypoxia triggers the formation of deep arteriovenous fistulae, leading to increased blood flow to the digits and subsequent hypertrophy. This mechanism is commonly observed in individuals with cyanotic heart diseases or chronic respiratory conditions. Another theory proposes that megakaryocytes become trapped in the peripheral vessels of the digits, releasing Vascular Endothelial Growth Factor (VEGF) and causing vessel dilation, increased vascularity, permeability, and changes in connective tissue. This process is often seen in respiratory conditions like bronchogenic carcinoma. Additionally, the neurally mediated hypothesis suggests a link between clubbing and the vagus nerve, as clubbing tends to occur in organs innervated by the vagus nerve, with reports of clubbing reversal following vagotomy. This phenomenon is evident in cases of oesophageal cancer, including our patient. Although oesophageal adenocarcinoma is rarely associated with digital clubbing, a few documented cases have highlighted this relationship. Analysis of reported cases reveals that affected individuals are typically elderly, with a higher prevalence among females. Both adenocarcinoma and squamous cell carcinoma are implicated in the pathogenesis of clubbing, but our patient is a young male with squamous cell carcinoma. In some instances, the onset of clubbing coincides with the progression of the oesophageal tumour, as observed in our case. Notably, investigations ruled out lung malignancy, metastasis, or pleural involvement as causative factors. Furthermore, there is no evidence to suggest that elevated Follicular Stimulating Hormone (FSH) levels contribute to clubbing. Therefore, we attribute the clubbing in our patient to oesophageal squamous cell carcinoma. In summary, while clubbing and hypertrophic osteoarthropathy can stem from various underlying conditions, they seldom indicate aggressive tumour growth.

Table 1: Relation between oesophageal cancer and clubbing.

	Author	Age	Sex	Pathology of esophagus
1	Carroll KB ¹	78	female	Esophageal adenocarcinoma
2	Polkey MI ²	71	female	Esophageal adenocarcinoma
3	Wilson RJ ³	69	female	Squamous cell carcinoma
4	Aljehani Y ⁴	71	male	Esophageal adenocarcinoma
5	Barber PV ⁵	54	female	Squamous cell carcinoma
6	Masaru Morita ⁶	65	Male	Squamous cell carcinoma

LEARNING POINTS/TAKE HOME MESSAGES

- Raising awareness about the fact that digital clubbing is a pathognomonic sign of oesophageal tumours.
- Clubbing can be a strong indicator of the rapid progression of oesophageal tumours.
- Including in the updated literature that oesophageal tumours can potentially cause digital clubbing.

REFERENCES

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FIGURE/VIDEO CAPTIONS

Figure captions

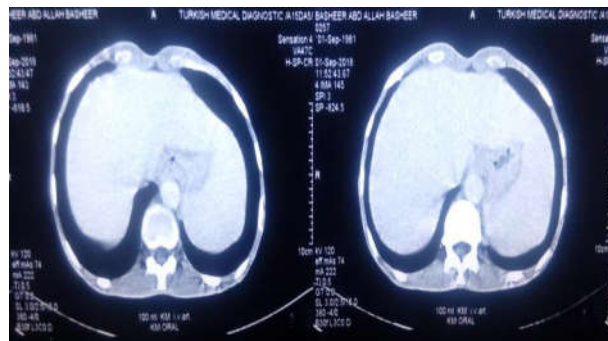


figure1: CT scan showed lower oesophageal tumour

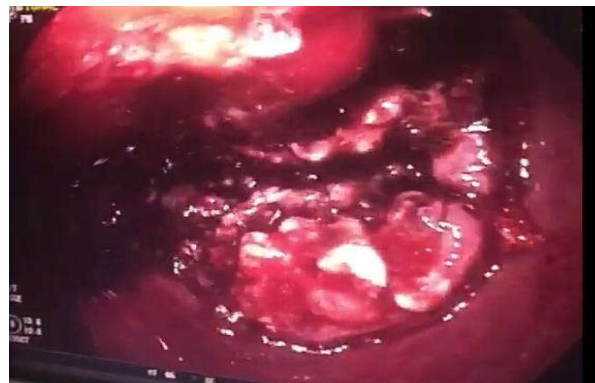


Figure2: lower oesophageal mass in OGD

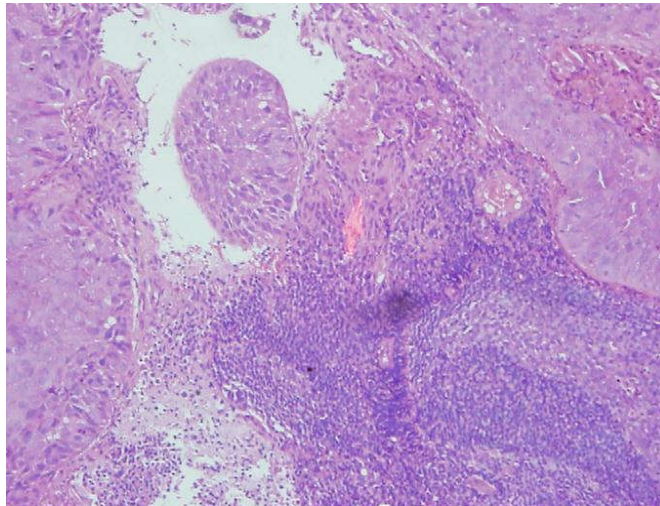
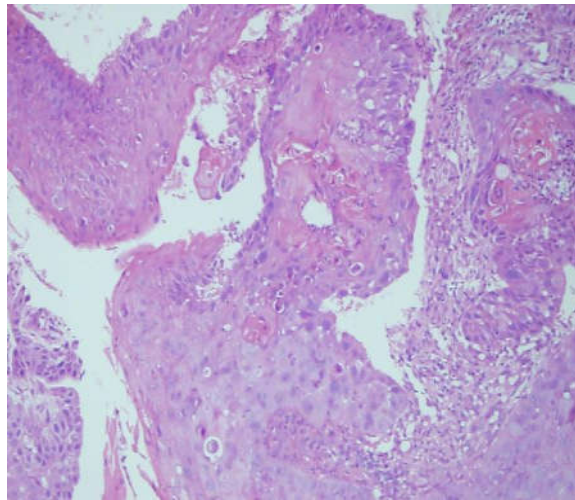


Figure 3: Histopathological slides showed moderately differentiated squamous cell carcinoma



Figure 4: showed finger clubbing



Figure 5: showed toes clubbing

