

A Rare Case of Tuberous Sclerosis with Adenocarcinoma of Stomach

Ramya Ravichandar¹, Rajam Krishna S², Priya Sivashankar³, and Sujai Anand*⁴

¹Department of Pharmacology, Sree Balaji Medical College and Hospital, Bharath Institute of Higher Education and Research (BIHER), Chennai, Tamil Nadu, India

²Department of Physiology, Sree Balaji Medical College and Hospital, Bharath Institute of Higher Education and Research (BIHER), Chennai, Tamil Nadu, India

³Department of Psychiatry, Sree Balaji Medical College and Hospital, Bharath Institute of Higher Education and Research (BIHER), Chennai, Tamil Nadu, India

⁴Department of Radiodiagnosis, Sree Balaji Medical College and Hospital, Bharath Institute of Higher Education and Research (BIHER), Chennai, Tamil Nadu, India

Corresponding author: Sujai.a@bharathuniv.ac.in

Abstract

Tuberous sclerosis is an autosomal dominant disorder that results from the disruption of 2 tumour suppressor genes. Tuberous sclerosis has been associated with various tumours. We report a case of a 42-year-old male who is a known case of tuberous sclerosis and presented with swelling in the axilla. Excision biopsy of the axillary swelling and ugi endoscopic biopsy showed poorly cohesive adenocarcinoma of the stomach.

Keywords: tuberous sclerosis, adenocarcinoma.

Introduction

Tuberous sclerosis is an autosomal dominant syndrome that includes classical triad of clinical features comprising mental retardation, epilepsy, and skin lesions. It results from the disruption of two tumour suppressor genes *tsc1*, which encodes hamartin, and *tsc2*, which encodes tuberin (Ahmed *et al.*, 2009). These proteins act as tumour growth suppressor agents that regulate cell proliferation and differentiation. Tuberous sclerosis has been associated with various hamartomas, angiomyolipomas, and rhabdomyomas. However, association with gastric adenocarcinoma has rarely been reported. We report a 42-year-old male who is a known case of tuberous sclerosis and presented with swelling in the axilla (Oh *et al.*, 2011). Excision biopsy of the axillary swelling and ugi endoscopic biopsy showed poorly cohesive adenocarcinoma of the stomach (Lendvay and Marshall, 2003). However, this could be a coincidental finding, and other cases need to be reported.

Case Report

A 42-year-old male presented with complaints of swelling in the left axilla for 2 months associated with history of loss of appetite and loss of weight. The patient was a known case of tuberous sclerosis and was on anti-epileptic medications. The patient also was a known case of pulmonary tuberculosis for which he took full course of antituberculous medications. Surgical history included an open appendectomy.

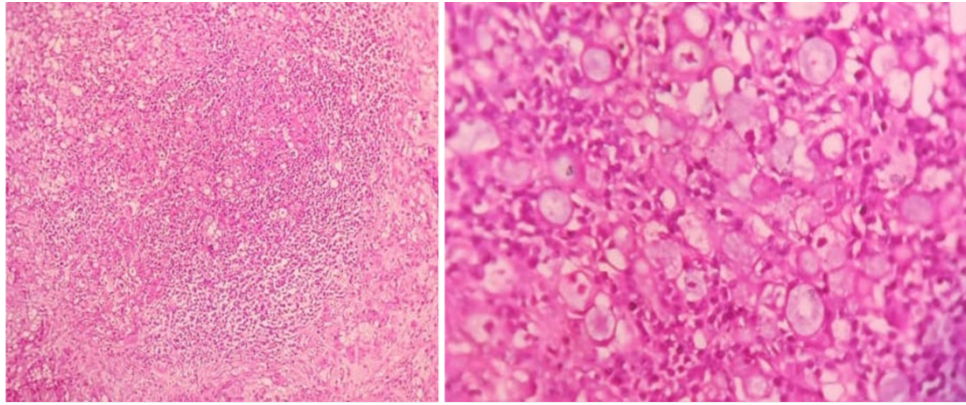
Clinical examination of the face revealed adenoma sebaceum. In addition, examination of the left axilla revealed two hard, non-tender, mobile lymph nodes of size 2cm.

Excision and biopsy of the lymphnodes was performed, which revealed secondary adenocarcinomatous deposits of mucinous type.

Ugi endoscopy revealed multiple polypoidal lesions with ulcerations in the stomach.

Biopsy was taken, which showed poorly cohesive adenocarcinoma of signet ring type.

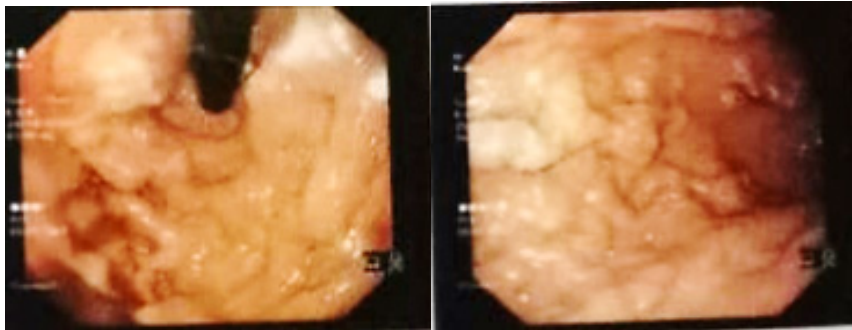
Unfortunately, the patient died before any intervention could be performed.



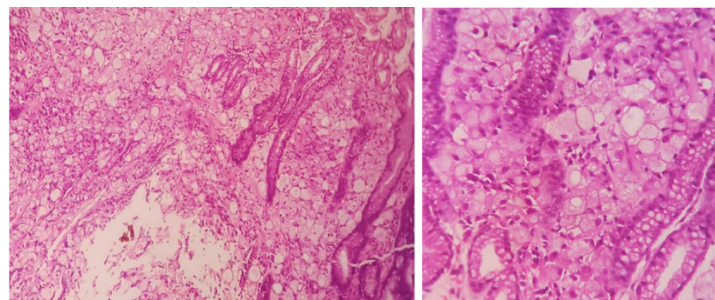
LOW POWER (10X)

HIGH POWER (40X)

LYMPH NODE



Ugi endoscopy revealing multiple polypoidal lesions with ulcerations of the stomach.



LOW POWER (10X)

HIGH POWER (40X)

GASTRIC BIOPSY

Discussion

Tuberous sclerosis is a genetic disorder with autosomal dominant inheritance. Mutation in one of the two tumour suppressor genes, tuberous sclerosis complex gene type 1 and tuberous sclerosis complex gene type 2 causes tuberous sclerosis (Kim *et al.*, 2000).

Mutations in these two genes lead to pathogenic variants of the proteins hamartin and tuberin and leading to functional loss.

Hamartin and tuberin form heterodimers, suggesting that they act in concert to regulate cell growth and proliferation. The subsequent loss of function leads to uncontrolled cell growth and cell proliferation resulting in the formation of hamartomas.

Hamartomas within CNS occur as cortical tubers and subependymal hamartomas, causing clinical manifestations like mental retardation and seizures. Extracerebral hamartomas include renal angiomyolipomas, cardiac rhabdomyomas, ash leaf macules of the skin, facial angiofibromas, subungual fibromas, shagreen patches, and also rarely lymphangioliomyomatosis of the lung (Northrup *et al.*, 1993).

Adenocarcinoma of the stomach has been broadly classified into the intestinal type and diffuse type. The intestinal type of adenocarcinoma of the stomach has multiple predisposing factors, including dietary causes and helicobacter pylori infection, and is not known to have any particular genetic factor. The diffuse type of adenocarcinoma of the stomach is associated with mutations in the cadherin gene (Tatsuta *et al.*, 1980).

Hamartomas of the stomach occur in adenomatous polyposus coli and very rarely in tuberous sclerosis. These hamartomatous polyps in association with adenomatous polyposus coli increase the risk of the stomach's malignancies. However, adenocarcinomas arising de novo from the polyps in the absence of adenomatous polyposus coli is very rare.

Conclusion

Very rarely, tuberous sclerosis has also been associated with gastrointestinal hamartomas. However, an association of stomach adenocarcinoma with tuberous sclerosis has not yet been established. This could be a coincidental finding, and further cases need to be reported.

Author contribution

Ramya Ravichandar, Rajam Krishna S, Priya Sivashankar and Sujai Anand encouraged and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

Acknowledgment: Nil

Conflict of interest: Nil

Study significance

We report a case of 42-year-old male who is a known case of tuberous sclerosis and presented with swelling in the axilla. Excision biopsy of the axillary swelling and ugi endoscopic biopsy showed poorly cohesive adenocarcinoma of the stomach.

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