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CLINICAL VIGNETTE

Esophageal Adenocarcinoma in an Otherwise Healthy 83-Year-Old Male

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Case

An 83-year-old male presented with 10 days difficulty swallowing solid foods and cold foods. He reported some regurgitation and weight loss. He did not have acid reflux, nausea, or changes in bowel habits. His medical history was significant only for basal cell carcinoma and his only regular meds were timolol and ketorolac eye drops. He had no history of Gastroesophageal Reflux Disease (GERD) and no prior endoscopy.

He is a never smoker, rarely drank alcohol and did not use any recreational drugs. Body mass index (BMI) was within normal range (24.18 kg/m^2). Physical exam included normal vital signs with blood pressure 144/70, pulse 58, body temperature 97.7 F, respiratory rate of 20, and room air oxygen saturation of 99%. His examination was essentially normal except for slight discomfort on palpating the epigastric area. Urgent upper endoscopy was scheduled and revealed a poorly differentiated adenocarcinoma in the lower third of the esophagus. Gastric biopsy was negative for any histopathologic changes or H pylori. CT scan of chest abdomen pelvis revealed multiple enlarged lymph nodes in the distal esophagus, gastroesophageal junction, and stomach areas. Lymphatic enlargement was also noted in the left supraclavicular, mediastinal, periaortic, and retro-crural lymphatic areas. Biopsy of left supraclavicular lymph node revealed metastatic poorly differentiated adenocarcinoma.

He was admitted for failure to thrive due to the rapid progression of dysphagia. He was started on total parenteral nutrition (TPN), and an esophageal stent was placed endoscopically, and chemotherapy (5FU) was initiated. However, he rapidly deteriorated and after family discussion, he was placed on hospice care.

Discussion

The incidence of esophageal adenocarcinoma (EAC) is rapidly increasing, especially among white males in developed western countries.[1] Pathophysiology of EAC may be associated with repeated acid reflux leading to esophageal epidermal cell changes, such as Barrett's Esophagus (BE). Severe abnormalities such as high-grade dysplasia can progress to invasive adenocarcinoma. Risk factors for EAC include GERD, high BMI, smoking, increased esophageal acid exposure, family history, and diets low in fruits and vegetables. Most commonly, EAC involves progressive dysphasia from solids to liquids. Often, patients report a choking sensation with food, unintentional weight loss, chest discomfort, odynophagia, and occasional voice changes.[2] EAC is often diagnosed at advanced stages as patients may not manifest early stage symptoms.[3] A recent Chinese study reported despite screening/surveillance guidelines for BE, there is poor adherence.[4]

This patient did not have any risk factors for EAC. A 2024 case report presented a similar patient. A 65-year-old healthy, nonsmoker female without any significant medical or family history complained of progressive dysphagia and regurgitation for 2 months with 15 pounds weight loss. She never developed any reflux symptoms and was found to have proximal esophageal adenocarcinoma extending to the thoracic esophagus without associated lymphadenopathy or metastases. She underwent chemotherapy / radiotherapy for six months and achieved complete remission.[5] Although this patient and our patient were both healthy at baseline, the extent of cancer invasion and location of their esophageal cancer differed with different outcomes. Both were diagnosed with EAC without history of acid reflux symptoms.

A clinical challenge for our patient was maintaining adequate nutrition, with rapid decline of oral intake. Despite parenteral nutrition and palliative stent placement, he had ongoing failure to thrive. Advanced age is a significant factor for effective treatment. A 2021 meta-analysis from the Netherlands reported higher postoperative mortality in older adults undergoing curative esophagectomy for esophageal cancer.[6] An Italian study (2007) advised surgical intervention for very limited number of patients >80 years. The study reported palliative endoscopic procedures were more appropriate in older patients.[7]

There are no current screening guidelines for EAC in healthy individuals. Studies have shown that patients with EAC have better prognosis if detected at an earlier stage. Unfortunately, most patients are diagnosed at later stages with poor prognosis as in our patient. More effective screening strategies are needed for early diagnosis of EAC. A 2013 EAC epidemiological study in the United States[8,9] reported marked improved 5-year-survival with detection at earlier stages.[9] A recent California cohort study reported perioperative chemotherapy improved survival in patients with locally advanced (stage II or III)

EAC.[10] There is increased evidence supporting screening patients with higher clinical, environmental, or epidemiological risk factors. Increased utilization of advanced imaging technologies—such as confocal laser endomicroscopy (CLE), volumetric laser endomicroscopy, incorporation of biomarker, or Artificial Intelligence—should improve early detection of EAC.[3]

There is need to emphasize measures to prevent EAC. A 2021 Italian literature review reported BMI, heavy smoking, and waist circumference associated with increased EAC risk. The review suggests diet rich in fruits, vegetables, and whole grains seems to have protective effect for EAC. Interestingly, alcohol consumption was not linked EAC risk.[11] Additional details on EAC risk factors are included in a 2016 manuscript in Gastrointestinal Tumors. It reports EAC risk increasing 3-fold with BMI greater than 30. Large waist circumference is related to risk of reflux esophagitis, which may contribute to carcinogenesis. Heavier smoking was also associated with EAC, however longer duration of smoking cessation was inversely related to EAC risk. Frequent fruit, vegetable, omega 3 fatty acid, and fiber consumption was also recommended to reduce BE risk. Intake of heme iron and a polycyclic amine (2-amino-3,4,8-trimethylimidazo[4,5-f]quinoxaline) that forms during cooking meat was also reported to have risk for EAC.[12] In addition, early detection with screening modalities, optimization of lifestyle to minimize the risk of EAC remains important for prevention.

REFERENCES

1. **Brown LM, Devesa SS, Chow WH**. Incidence of adenocarcinoma of the esophagus among white Americans by sex, stage, and age. *J Natl Cancer Inst*. 2008 Aug 20;100(16):1184-7. doi: 10.1093/jnci/djn211. Epub 2008 Aug 11. PMID: 18695138; PMCID: PMC2518165.
2. **Wang Y, Mukkamalla SKR, Singh R, Babiker HM, Lyons S**. Esophageal Cancer. 2024 Aug 17. In: *StatPearls [Internet]*. Treasure Island (FL): StatPearls Publishing; 2024 Jan–. PMID: 29083661.
3. **Qu HT, Li Q, Hao L, Ni YJ, Luan WY, Yang Z, Chen XD, Zhang TT, Miao YD, Zhang F**. Esophageal cancer screening, early detection and treatment: Current insights and future directions. *World J Gastrointest Oncol*. 2024 Apr 15;16(4):1180-1191. doi: 10.4251/wjgo.v16.i4.1180. PMID: 38660654; PMCID: PMC11037049.
4. **Vlismas LJ, Potter M, Loewenthal MR, Wilson K, Allport K, Gillies D, Cook D, Philcox S, Bollipo S, Talley NJ**. Outcomes of patients with Barrett's oesophagus with low-grade dysplasia undergoing endoscopic surveillance in a tertiary centre: a retrospective cohort study. *Intern Med J*. 2024 Nov;54(11):1867-1875. doi: 10.1111/imj.16532. Epub 2024 Sep 20. PMID: 39301935.
5. **Akoum A, Nasrallah J, Al Jebawi K, Kanso N, Joumaa H, Ibrahim R**. Proximal esophageal adenocarcinoma: A rare case report. *Int J Surg Case Rep*. 2024 Jul;120:109868. doi: 10.1016/j.ijscr.2024.109868. Epub 2024 Jun 6. PMID: 38852572; PMCID: PMC11220545.
6. **Baranov NS, Slootmans C, van Workum F, Klarenbeek BR, Schoon Y, Rosman C**. Outcomes of curative esophageal cancer surgery in elderly: A meta-analysis. *World J Gastrointest Oncol*. 2021 Feb 15;13(2):131-146. doi: 10.4251/wjgo.v13.i2.131. PMID: 33643529; PMCID: PMC7896422.
7. **Ruol A, Portale G, Castoro C, Merigliano S, Cavallin F, Battaglia G, Michieletto S, Ancona E**. Management of esophageal cancer in patients aged over 80 years. *Eur J Cardiothorac Surg*. 2007 Sep;32(3):445-8. doi: 10.1016/j.ejcts.2007.06.014. Epub 2007 Jul 23. PMID: 17643999.
8. **Joseph A, Raja S, Kamath S, Jang S, Allende D, McNamara M, Videtic G, Murthy S, Bhatt A**. Esophageal adenocarcinoma: A dire need for early detection and treatment. *Cleve Clin J Med*. 2022 May 2;89(5):269-279. doi: 10.3949/ccjm.89a.21053. PMID: 35500930.
9. **Zhang Y**. Epidemiology of esophageal cancer. *World J Gastroenterol*. 2013 Sep 14;19(34):5598-606. doi: 10.3748/wjg.v19.i34.5598. PMID: 24039351; PMCID: PMC3769895.
10. **Jeon WJ, Park D, Al-Manaseer F, Chen YJ, Kim JY, Liu B, Wu S, Castillo D**. Survival and Treatment Patterns in Stage II to III Esophageal Cancer. *JAMA Netw Open*. 2024 Oct 1;7(10):e2440568. doi: 10.1001/jamanetworkopen.2024.40568. PMID: 39432303; PMCID: PMC11581628.
11. **Nucci D, Marino A, Realdon S, Nardi M, Fatigoni C, Gianfredi V**. Lifestyle, WCRF/AICR Recommendations, and Esophageal Adenocarcinoma Risk: A Systematic Review of the Literature. *Nutrients*. 2021 Oct 8;13(10):3525. doi: 10.3390/nu13103525. PMID: 34684526; PMCID: PMC8538904.
12. **Yang CS, Chen X, Tu S**. Etiology and Prevention of Esophageal Cancer. *Gastrointest Tumors*. 2016 Sep;3(1):3-16. doi: 10.1159/000443155. Epub 2016 Feb 3. PMID: 27722152; PMCID: PMC5040887.