



Microbial Dysbiosis in Achalasia: Insights on How to Prevent Cancer

TO THE EDITOR: With great interest, we read the article of Jung et al.¹ The authors made a well-designed study, producing the first to show the esophageal microbiota in patients with achalasia using 16S ribosomal RNA sequencing. The authors showed that the microbial composition did not significantly change after the per-oral endoscopic myotomy (POEM), despite a significant improvement in the nutritional intake.

The microorganisms benefit the human host in many ways, such as digestion, assisting certain vitamin synthesis, developing the gastrointestinal and immune system, regulating metabolism, and preventing invasion by some pathogens.² On the other hand, microbial dysbiosis may lead to tissue damage and play significant roles in various diseases, including inflammatory disorders and cancers.³

Some studies have already shown the role of microbiota in cancer development. The mechanisms by which the microbiota affects the pathogenesis of achalasia and esophageal carcinoma are unclear. However, it is well known that microbiota alteration may result in inflammation, and persistent chronic inflammation may promote carcinogenesis.⁴ Furthermore, bacteria may generate toxins that could induce DNA damage and genomic instability,⁵ and some bacterial products have tumor-promoting effects.⁶

POEM is a highly successful minimally invasive treatment for achalasia,⁷ with over 90% improvement in dysphagia.⁸ An intuitive presumption is that correcting the food stasis would normalize the esophageal microbiota and, finally, would reduce the cancer transformation risk in achalasia. A previously published meta-analysis suggested that achalasia treatment would not reduce the risk of malignization in achalasia.⁹ The study by Jung et al¹ showed that POEM might not be able to transform the microbiota and bring it back to normality. This finding could explain why cardia treatment methods for achalasia cannot reduce the cancer risk.

Findings by Jung et al¹ lead to medical and scientific implications. Firstly, the carcinogenesis mechanisms remain after POEM, and consequently, endoscopic periodic surveillance exams are still necessary after achalasia treatment. Secondly, future studies should investigate the role of esophageal microbiota in achalasia cancer screening and prevention. Future studies should focus on how to change achalasia microbiota to prevent cancer. Proton pump inhibitors, reflux, and diet influence the esophageal microbiota,¹⁰ and consequently, topical and systemic antibiotics, pH alterations, and diets should be investigated. Besides, the oral and esophageal microbiome could act as a screening tool, and future studies should investigate the capacity of microbiota as a complementation to the endoscopy surveillance.

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