Fusobacterium nucleatum

Colorectal cancer (CRC) is the fourth most common cancer in 2018 with poor prognosis. Fusobacterium nucleatum (F.n), is found to be enriched in both stools and tumor tissues of CRC patients. As surveys show, tumor initiates before the collection of F.n. In return, F.n helps cancer cells to build up tumor microenvironment and benefit for their chemo-resistant. The elements constituted the tumor environment, including neutrophils, macrophages and lymphocytes, contribute to the existing of tumor cells respectively. However, the integrated and interactive roles of those elements are poorly investigated. The intracellular molecular alteration MSI is a result of F.n infection and the microbiology-molecular pathological epidemiology (MPE) has become a new trend to analysis F.n and tumorigenesis. Chemoresistance of tumor cells is also affected by F.n induced microenvironment, or F.n achieves it directly. Finally, F.n could be a biomarker of CRC. All in all, our review will lay a foundation for the therapy of CRC through the interference of F.n and perspective to follow-up studies [1].

Fusobacterium spp. are Gram negative anaerobe bacteria. Vertebral osteomyelitis caused by these bacteria is very unusual; in fact, Mediavilla-Santos et al. could only find 11 cases in the literature.

They report the case of a male, 46 year-old patient who had had lumbar pain for several weeks that irradiated to the right leg, and did not respond to NSAID treatment. The work-up included MRI, biopsy with draining of the collection and a universal PCR followed by 16S rDNA sequencing. The latter was used to make the microbiologic diagnosis, which identified Fusobacterium nucleatum as the causative agent. Final treatment consisted of clindamycin.

Spondylodiscitis due to Fusobacterium spp. is a rare and difficult to diagnose entity, due both to its clinical characteristics and to the difficulty in making the right microbiologic diagnosis [2].

1)
Luo K, Zhang Y, Xv C, Ji J, Lou G, Guo X, Chen M, Zhang Y, Wei H, Guo M, Huang R, Yu S. Fusobacterium nucleatum, the communication with colorectal cancer. Biomed Pharmacother. 2019 May 18;116:108988. doi: 10.1016/j.biopha.2019.108988. [Epub ahead of print] Review. PubMed PMID: 31112873.

2)
Mediavilla-Santos L, Fernández-Mariño JR, Sánchez-Somolinos M, Vicente-Herrera E, Díaz-Mauriffo-Garrido-Lestache J, Marín-Martín M. [Spondylodiscitis due to Fusobacterium nucleatum: new diagnostic method]. Acta Ortop Mex. 2014 Jul-Aug;28(4):248-52. Spanish. PubMed PMID: 26021107.

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