Journal of Medical Imaging & Case Reports

https://doi.org/10.17756/micr.2024-109

Case Report

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A Rare Pathological Revelation: Muir-Torre Syndrome

Makineni Karthik Sai[1*], Sadanala Lakshmi Lavanya[2*], Kadari Manichander Patel[3] and Ananya Bengeri[4]

[1]*SRM Medical College, Kanchipuram, Tamil Nadu, India*

[2]*Government Medical College, Siddipet, Telangana, India*

[3]*Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar, Telangana, India*

[4]*Manipal University College Malaysia, Melaka, Malaysia*

***Correspondence to:**
Makineni Karthik Sai
SRM Medical College,
Kanchipuram, Tamil Nadu, India

Sadanala Lakshmi Lavanya
Government Medical College,
Siddipet, Telangana, India

Received: July 29, 2024
Accepted: October 25, 2024
Published: October 30, 2024

Citation: Sai MK, Lavanya SL, Patel KM, Bangeri A. 2024. A Rare Pathological Revelation: Muir-Torre Syndrome. *J Med Imaging Case Rep* 8(2): 43-45.

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Abstract

Muir-torre syndrome (MTS) is an autosomal dominant phenotypic variant of hereditary non-polyposis colorectal cancer (HNPCC), which is also known as lynch syndrome (LS). It is caused by mutations in DNA mismatch repair genes which result in microsatellite instability. The hallmark features of MTS are sebaceous neoplasms of the skin and visceral malignancies with colonic carcinoma being the most common. The association of mismatch repair gene mutations and visceral malignancies warrants earlier and more frequent screening for malignancy. This activity describes the pathophysiology, etiology, and presentation of MTS and highlights the role of the interprofessional team in its management. We report a 55-year-old man who is diagnosed with sebaceous cyst for 3 years and underwent an excision of cyst whose pathology revealed a sebaceous carcinoma.

Keywords

Muir-torre syndrome, Lynch syndrome, Sebaceous neoplasms, Biopsy, Carcinoma

Introduction

MTS was first described by Muir et al. in 1967 and, independently, by Torre et al. one year later in 1968. MTS is an autosomal dominant disorder that is a phenotypic variant of HNPCC which is also known as LS [1-3]. It is caused by mutations in DNA mismatch repair genes which result in microsatellite instability. The hallmark features of MTS are sebaceous neoplasms of the skin and visceral malignancies with colonic carcinoma being the most common. The association of mismatch repair gene mutations and visceral malignancies warrants an earlier and more frequent evaluation for malignancy [4-8].

Case Presentations

A 55-year-old male came with swelling over right gluteal region for 3 years, associated with intermittent pain. On examination: solitary, 4 × 4 cm firm swelling in right upper and outer gluteal region, with punctum over it. No other signs of inflammation.

August 2020, he underwent cystoscopy for hematuria + RT VUJ biopsy which showed low grade invasive urothelial CA (both ureter and bladder) {pT1}.

PET CT: Intense tracer uptake in hepatic flexure.

Colonoscopic biopsy: Adeno carcinoma

Sep 2020: Radical right hemicolectomy + right nephrectomy + partial cystectomy + pelvic node dissection.

HPE bladder: Invasive papillary urothelial Ca. (pT2N0M0).

Colon: Well differentiated Adeno Ca. PT3N0M0 he received 6 cycles chemotherapy (Oxaliplatin f/b Irinotecan).

For the present sebaceous swelling, he was planned for excision biopsy of swelling over gluteal region and underwent surgery. HPE suggests sebaceous adenoma with areas of necrosis in background of MTS.

Immunohistochemistry (IHC): Focal increase in P53 and MIB 1 expression (Figure 1 and figure 2).

Discussion

Autosomal dominant. Sebaceous gland tumors + LS. Described by Dr. Muir (1967) and Dr. Torre (1968). MTS is caused by a genetic defect in mismatch repair genes and is most often inherited in an autosomal dominant manner. The genes most commonly mutated in MTS include MLH1, MSH2, MSH6, and PMS2. More recently, some autosomal recessive cases of MTS have been described as not display microsatellite instability and are due to defects in the base excision repair gene known as MYH. It is estimated that these cases account for roughly 35% of MTS cases and have been named MTS II [9, 10]. Sporadic cases also have been described, and these are usually seen in the setting of immunosuppression with tacrolimus and cyclosporine being the main offender.

Clinical features: Sebaceous gland tumors: sebaceous adenomas, sebaceous carcinomas, keratoacanthomas.

Internal malignancies: Cutaneous manifestations often precede internal malignancy diagnosis.

Diagnostic criteria: MTS

Clinical: At least one sebaceous gland tumor and one internal malignancy.

Histopathological: Identification of specific cellular characteristics in sebaceous tumors.

Genetic testing: Detection of germline MMR gene mutations and microsatellite instability.

IHC: Detecting loss of MMR protein expression in tumors [11].

Management strategies

Surveillance: Regular dermatologic exams, colonoscopies, and gynecological assessments.

Cutaneous lesions: Excision of tumors, use of low-dose isotretinoin.

Visceral malignancies: Surgery, chemotherapy, radiotherapy, immunotherapy for MSI-high tumors [12, 13].

Recent advancements

Immunotherapy: Use of immune checkpoint inhibitors (e.g., pembrolizumab) for MSI-high tumors.



Figure 1: Cyst.

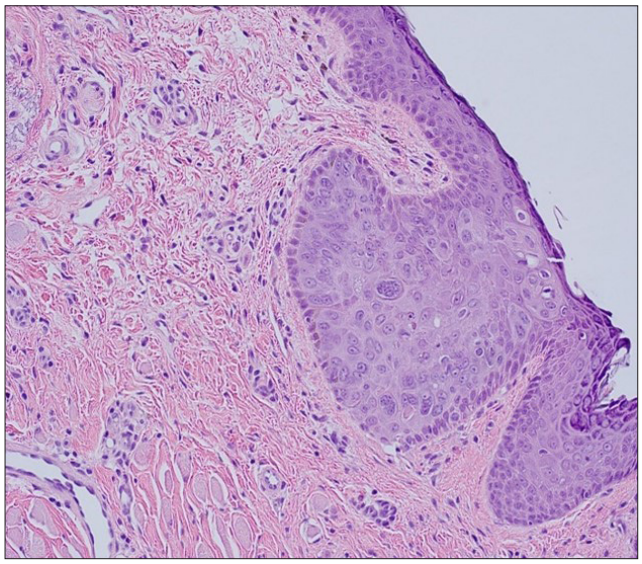


Figure 2: Pathology.

Genetic and personalized medicine: Tailored surveillance and treatment based on genetic profiles [14, 15].

Conclusion

MTS is a rare syndrome associated with various dermal and visceral malignancies. These patients are best managed by an interprofessional team that includes oncology nurses. Once the diagnosis is made MTS patients should undergo annual surveillance for visceral and cutaneous malignancy. Upper and lower gastrointestinal endoscopy should be performed. Colonoscopy may begin as early as 18 years while upper endoscopy is recommended around 25 to 30 years. Men should undergo annual testicular and prostate exams, and women should have annual breast and pelvic exams along with transvaginal ultrasound and endometrial sampling for suspicious findings. Other potentially beneficial tests would include chest x-ray, cervical and urine cytology, carcinoembryonic antigen levels, fecal occult blood testing,

liver function tests, and complete blood counts. The skin lesions are managed with topical ablative therapies or surgical excision. The prognosis for these patients is poor as most succumb to malignancies.

Acknowledgments

None.

Conflicts of Interest

None.

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