

Host Defenses Gone Awry

A Perianal Puzzle

Cynthia K. Wallace, MD, MBA, MSPH
Infectious Disease Fellow

West Coast Transplant ID Meeting
4/1/2026

Clinical Background

- 59 yo gentleman s/p OHT 3/4/25
 - TTN variant dilated cardiomyopathy
 - Prior inotropes, Impella, AICD
- Immunosuppression
 - Tacrolimus 1.5 mg q12
 - MMF 180 mg q12
 - Stopped prednisone 9/24/25
- Transplant serologies
 - CMV -/-
 - EBV -/+
 - Toxo -/-

Presentation

- Presented 7/22/25 with rectal bleeding, 1 cm rectal lesion
 - Blood on toilet paper x 3 days
 - Perianal pain & itching
 - No trauma
 - No straining
 - He described as “blister”
- Last colonoscopy 1/24/23
 - Normal perianal and DRE exams
 - Non-bleeding Grade I internal hemorrhoids

Presentation

- Vitals
 - BP 130/70 HR 104 RR 20 T 97.5
- Exam
 - Non-toxic, no distress
 - 1 cm superficial wound adjacent to anus
 - No bleeding, no purulence
 - No erythema, no induration
 - No hemorrhoids, no anal lesions, no fissures
 - Mild tenderness to palpation

Presentation



- Labs
 - BUN/Cr 47/2.2 (~baseline)
 - ALP 465
(trending up, 134 [REDACTED])
 - WBC 5.51 (stable)
 - Mild lymphopenia (improving)
- Imaging
 - No relevant images or radiology

Presentation

- Active Problems
 - HTN
 - CKD stage 3
 - Steroid-induced hyperglycemia
 - OSA on CPAP
 - Chronic cholecystitis, percutaneous cholecystostomy
 - Chronic DVT, no anticoagulation

Presentation

- Social History

- Lives alone, 2 dogs (lab and Frenchie)
- Accountant for the fire department, likes to walk dogs, play golf
- No bird, fish or livestock exposures, no hunting
- No gardening/yardwork
- Born and raised in Hawaii, otherwise has lived in WA
- Travel to CA, AZ, CO, Philippines, Mexico, Canada, family from Philippines
- 30 pack-year smoking hx, quit 2022

Differential?



<https://www.hopkinsmedicine.org/health/conditions-and-diseases/perianal-abscess>
S0001731022006317

- Viral
 - Herpesviruses (HSV, CMV)
 - Mpox
 - Human papilloma virus
- Bacterial
 - Perianal abscess (GNRs, polymicrobial)
 - Syphilis, gonorrhea, chlamydia
- Fungal
 - Cryptococcus
 - Histoplasmosis
 - Coccidioides
- Other
 - Perianal fistula
 - Leukemia cutis
 - Squamous cell carcinoma

Differential

- What's your diagnosis?
 - Mpox
 - HSV
 - Syphilis
 - Cryptococcus
 - Squamous cell carcinoma
 - Other

Clinical Course

- Initial Recommendations
 - Dx: superficial skin ulcer
 - Recs: keep clean and dry, warm sitz baths, topical antibacterial BID
 - FU if no improvement in 1 week
- 7/28 – 8/1/25 admission
 - planned cholecystectomy
 - CTX + metronidazole -> amox-clav (5 days)

Clinical Course

Next Steps?

- 9/29/25 PCP
 - Normal vitals
 - WBC 4.46
 - 0.5 cm left anal fistula noted
- Referred to colorectal surgery

Clinical Course

- 11/3/25 Colorectal surgery
 - Exam
 - Left posterolateral anal lesion
 - No masses
 - Normal tone
 - Anoscopy
 - Grade 2 internal hemorrhoids
 - Biopsy performed

Pathology

“Differential diagnosis includes infection, inflammatory process, histiocytic neoplasm, or granular cell tumor. Due to the abundant histiocytes with granular PASD positivity and history of immunosuppression, Whipple disease should be excluded.”

- Initial Report
 - Polypoid squamous mucosa with inflamed stroma including abundant histiocytes
 - Negative for dysplasia/carcinoma
 - PASD stain granular positivity
 - AFB stain negative
 - GMS stain with rare yeast
 - Van Kossa stain negative for inclusions
 - Malakoplakia considered unlikely
- Hematopathology review requested

Clinical Course

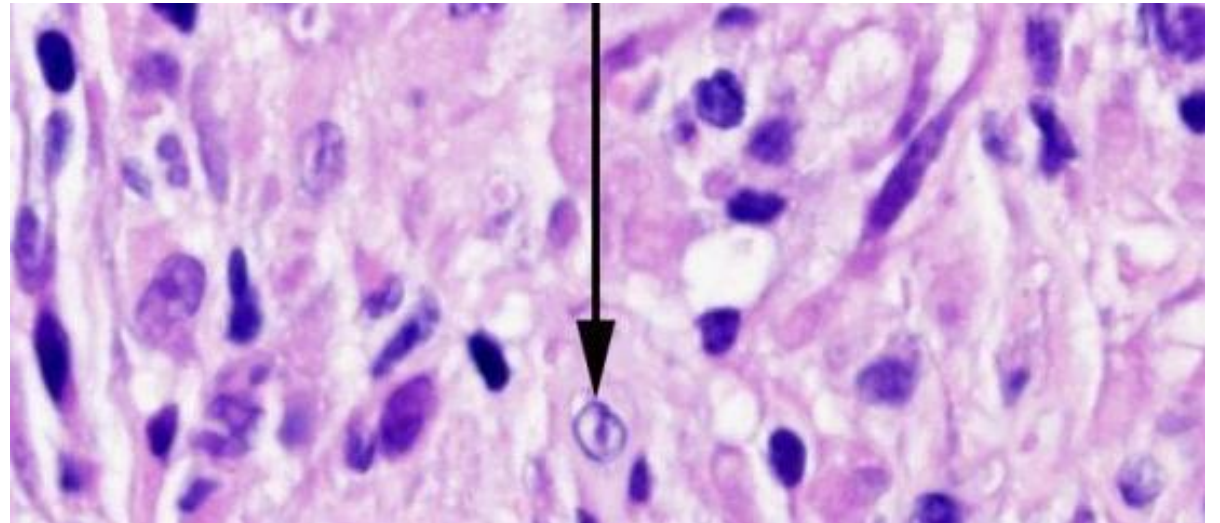
- 11/11/25 surgical follow-up
 - Some bleeding, no purulence
 - Final pathology pending



Hematopathology

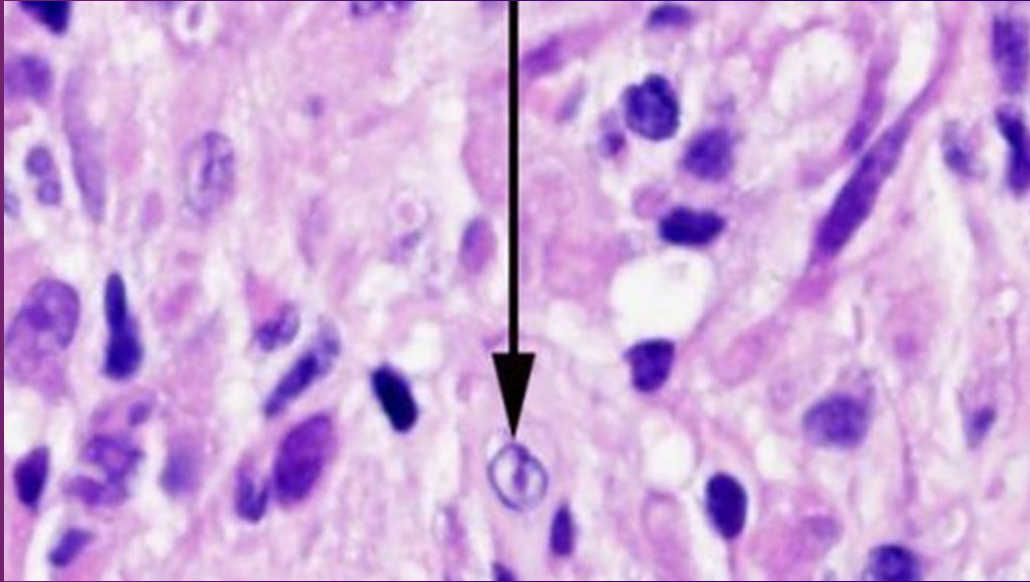
“These additional findings raise the concern for malakoplakia.”

- Addended Report
 - Ruled out histiocytic neoplasm
 - Prussian blue stain suspicious for inclusion positivity
 - One suspicious inclusion: Michaelis-Gutmann body



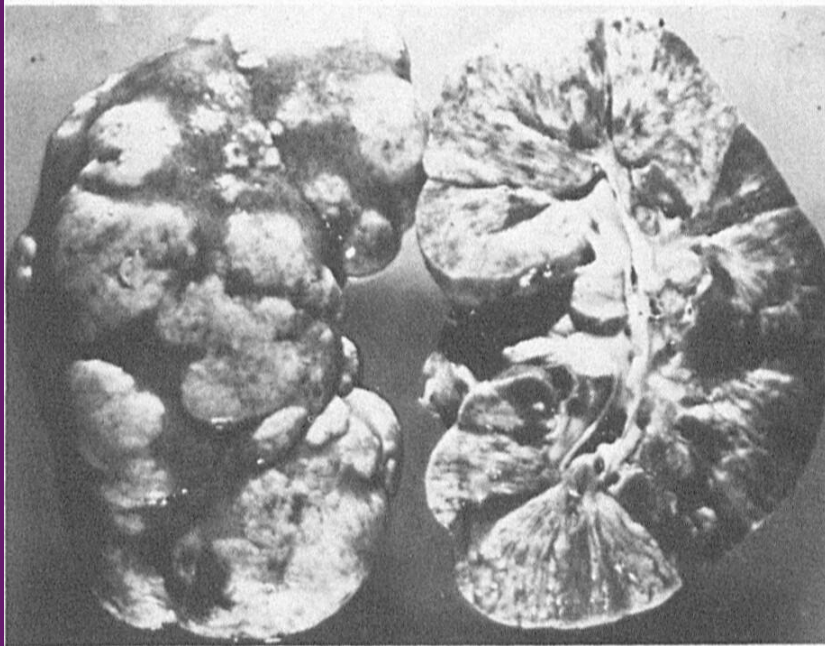
<https://www.arkanalabs.com/malakoplakia/>

Michaelis-Gutmann Body



- What is this and why does it matter?
 - Described by Leonor Michaelis and Carl Gutmann in 1902
 - Calcified, iron-containing cytoplasmic inclusions
 - Comprised of remnants of (usually) gram-negative bacteria
 - Highlighted by:
 - Periodic acid-Schiff
 - Von Kossa (calcium)
 - Prussian blue (iron)
 - Pathognomonic for malakoplakia

Malakoplakia



<https://www.nejm.org/doi/full/10.1056/NEJM197811162992005>

- Malakos + plakia = soft plaque
- Von Hanseman cells = large macrophages containing MG bodies
- Most frequently seen in people with renal transplant
- Most frequently occurs in urogenital tract
- Often locally disseminated

Next Steps?

- Surgical excision
- Start antibiotics
- Reduce immunosuppression
- Start bethanechol
- Observation

Clinical Course

*Polypoid squamous mucosa with a prominent histiocytic infiltrate having cytoplasmic basophilic inclusions, consistent with Michaelis-Gutmann bodies as highlighted on von Kossa calcium special stain and Prussian blue iron special stain. Reactive epithelial hyperplasia and chronic active inflammation are present. **The findings are consistent with malakoplakia.***

- 11/18/25 path resulted, scheduled for excision
- 12/11/25 excision of perianal mass
- Referred to SOT ID

Clinical Course

- 1/23/26 SOT ID visit (telemedicine)
 - Doing well, denies residual lesion
 - Diagnosis: malakoplakia
 - Cultures: none
 - PCR: none

Additional Work-up?

- CT abdomen/pelvis
- Flexible sigmoidoscopy
- Urine culture
- Transthoracic echocardiogram
- Biopsy PCR

Clinical Course

- Requested bacterial and fungal PCR from both biopsies
 - Both returned positive for e. coli
 - Fungal PCRs were negative
- Requested flexible sigmoidoscopy
 - Scheduled for May

Malakoplakia

Pathogenesis

- Ineffective phagocytosis leading to:
 - Chronic inflammatory response
 - Chronic infection
- Most frequently occurs with immunocompromise

Malakoplakia

Clinical Presentations

Sonos, et al. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12917254/>

Organ or Tissue	Comments	Source, y
Colon	May be associated with adenocarcinoma	Matter et al, ² 2001
Stomach Gallbladder		Gustavo et al, ⁵ 2004 Agnarsdottir et al, ²⁴ 2004
Pancreas Soft tissue of the neck	May be associated with tuberculosis and respond to anti-tuberculosis treatment	Zuk et al, ²¹ 1990 Kumar and Coady, ²³ 2005
CNS	Usually in infants Usually associated with neonatal herpes	Rickert et al, ⁴ 2000; Volk et al, ¹⁴ 1992
Middle ear		Puente Lopez et al, ²⁵ 1995
Tongue Tonsils Conjunctiva		Carbone et al, ²⁶ 2002 Bates et al, ¹⁹ 1997 Minor and Lindgren, ¹¹ 2003
Thyroid Trachea		Jeffrey et al, ²⁷ 1996 Schmerber et al, ²⁸ 2003
Lung	May be associated with hilar lymph nodes May mimic tuberculosis	Pang, ¹⁵ 2005
Lymph nodes Skeleton Skin	May cause cutaneous abscess and fistula Reported in nonhealing surgical wound	Bates et al, ¹⁹ 1997 Bates et al, ¹⁹ 1997 Bates et al, ¹⁹ 1997; Sinha et al, ²⁹ 2003; Pang, ³⁰ 2003
Breast Prostate	Can be associated with adenocarcinoma	Bates et al, ¹⁹ 1997 Repassy et al, ¹⁷ 2002
Testis Cervix and vulva Adrenal	Usually present by bleeding	Repassy et al, ¹⁷ 2002 Agnarsdottir et al, ¹⁶ 2004 Minor and Lindgren, ¹¹ 2003
Bone		Wielenberg et al, ¹² 2004
Peritoneum		

Malakoplakia

Gastrointestinal Presentations

TABLE 1. The incidence of gastrointestinal malakoplakia by site in the gastrointestinal tract and involvement of adjacent and unrelated structures

Site of involvement	No. of cases	%
Rectum	18	28.57
Sigmoid colon	12	19.04
Caecum	6	9.52
Descending colon	6	9.52
Ileum	5	7.94
Stomach	4	6.35
Appendix	4	5.35
Ascending colon	3	4.76
Transverse colon	2	3.17
Entire colon	2	3.17
Anal canal and perianal region	1	1.59
Total	63	
Retroperitoneum	6	
Drainage lymph nodes	4	
Mesentery	2	
Total	12	

TABLE 2. Diseases associated with gastrointestinal malakoplakia

Associated disease	No. of cases	%
Carcinoma of colon	6	19.35
Carcinoma of rectum	5	16.13
Recurrent villous adenoma of colon	1	3.23
Adenomatous polyp	1	3.23
Ulcerative colitis	1	3.23
Hiatus hernia and colonic diverticulosis	1	3.23
Gastric ulcer	1	3.23
Diffuse lymphocytic lymphoma	1	3.23
'Reticulum cell sarcoma' and α -chain disease	1	3.23
Carcinoma of prostate, pyelonephritis with abscess formation	1	3.23
Prostatic hypertrophy and hypertension	1	3.23
Urinary infection with <i>Escherichia coli</i>	1	3.23
Pulmonary infection with <i>Nocardia asteroides</i>	1	3.23
? systemic lupus erythematosus, ? rheumatoid arthritis	1	3.23
Neurofibromatosis, multiple haemangiomas, syringomyelia	1	3.23
Heroin addiction	1	3.23
Bilateral pleural effusions	1	3.23
Alcoholic cirrhosis	1	3.23

McClure, et al. <https://pmc.ncbi.nlm.nih.gov/articles/PMC2424798/>

Malakoplakia

Thoracic Transplant Presentations

Table 1. Review of Known Cases With Malakoplakia in Thoracic Transplant Recipients

Reference	Case (Years)	Underlying Transplanted Organ	Location	Organism	Comment	Treatment	Outcome	Differential Diagnosis
Case 1	55M	Heart	Perineal ulcer with regional lymph nodes	<i>Escherichia coli</i> , <i>Staphylococcus epidermidis</i>		Ceftriaxone 1 g IV for 21 days; doxycycline 100 mg orally twice daily for 21 days; vancomycin IV for 14 days	Cure	Sexually transmitted genitourinary ulcers
Case 2	67M	Lung	Perirectal ulcers and rectal mass	<i>E coli</i>		Reduction in immunosuppression	Cure	Invasive blastomycosis
Colby et al [1]	42M	Heart	Pulmonary nodule	Unclear—possible organisms include <i>Corynebacterium</i> spp, <i>Acinetobacter</i> spp, <i>Cryptococcus</i> , or <i>Staphylococcus</i> spp	Lost to follow-up while on treatment; final admission also presented with possible cerebral lymphoma	Ampicillin for 3 months, erythromycin for unclear duration (loss to follow-up), amphotericin B and 5FC for 14 days until death	Death	Not documented
Teeters et al [2]	55F	Heart	Perineal ulcers and rectal mass with regional lymph nodes	<i>E coli</i>	Diabetes	Ciprofloxacin IV, then oral for 10 weeks	Cure	Rectal cancer

Abbreviations: F, female; IV, intravenous; M, male.

Lane, et al. <https://pmc.ncbi.nlm.nih.gov/articles/PMC6464378/>

Malakoplakia – More OHT

Author	Time from Tx	Presentation	Site	Treatment
Geng, et al, 2025	9 years	Urinary retention, nocturia	Prostate	Levofloxacin, enucleation
Meredith, et al, 2020	2 months	Diarrhea, recurrent e coli bacteremia	Colon	Prolonged antibiotics, reduction immunosuppression
Coron, et al, 1996.	Unknown	Unknown	Epididymis	Unknown
Remond, et al, 1993	Unknown	Unknown	Cutaneous	Unknown
Shafijan, 2020.	Unknown	Unknown	Colon	Unknown

Total OHT	GI	GU	Lung	Cutaneous
8	4	2	1	1

Malakoplakia

Treatment



- UpToDate is silent
- ChatGPT
 - kill the bacteria
 - + help macrophages do their job
 - + fix the host context
- OpenEvidence
 - Same as ChatGPT, more evidence, less pith
- Treatment typically:
 - Prolonged antibiotics
 - How long?
 - Reduced immunosuppression
 - Surgical excision if possible/necessary

Malakoplakia

Our Approach

- Initiate levofloxacin
 - Plan for ≥ 2 months
 - Follow-up flex sig ([REDACTED])



QUESTIONS?

Thank you to: Robert Rakita, Ralph Tayyar and Kara Britten from our SOT ID Team!

References

1. Sono S, Kaji K, Miura M, et al. Colonic Malakoplakia With an Adenomatous Appearance on Magnification Endoscopy: A Case Report. *DEN Open*. 2026;6(1):e70296. doi:10.1002/deo2.70296
2. Lee M, Ko HM, Rubino A, Lee H, Gill R, Lagana SM. Malakoplakia of the gastrointestinal tract: clinicopathologic analysis of 23 cases. *Diagn Pathol*. 2020;15:97. doi:10.1186/s13000-020-01013-y
3. Yousef GM, Naghibi B. Malakoplakia Outside the Urinary Tract. *Arch Pathol Lab Med*. 2007;131(2):297-300. doi:10.5858/2007-131-297-MOTUT
4. McClure J. Malakoplakia of the gastrointestinal tract. *Postgrad Med J*. 1981;57(664):95-103. doi:10.1136/pgmj.57.664.95
5. Geng S, Li L, Sun Y, Zhang J, Li Y, Chen L. A case report of prostatic malacoplakia after heart transplantation and review of the literature. *J Surg Case Rep*. 2025;2025(9):rjaf716. doi:10.1093/jscr/rjaf716
6. Kawatoko S, Yamamoto H, Fuyuno Y, Umeno J. A case of colorectal malakoplakia in a patient with cytomegalovirus-associated refractory ulcerative colitis. *Dig Liver Dis*. 2026;58(1):131-132. doi:10.1016/j.dld.2025.08.086
7. Lafontaine Álvarez JC, Portilla Skerret G, Marcos Martínez MJ, Rodríguez López R. A Case of Rectal Malakoplakia Associated With Crohn's Disease: An Incidental Finding. *Cureus*. 2025;17(5):e84829. doi:10.7759/cureus.84829
8. Lane R, Kradin R, Xia D, et al. Malakoplakia in Thoracic Transplant Recipients. *Transplant Proc*. 2019;51(3):871-874. doi:10.1016/j.transproceed.2018.11.008

References

9. Meredith T, Dharan N, Killen L, et al. Colonic malakoplakia in a dual stem cell and cardiac transplant recipient: A case report and literature review. *Transpl Infect Dis.* 2021;23(2):e13488. doi:10.1111/tid.13488
10. Soria Corón MR, Campos de Orellana Gómez AM, Gordillo Chaves J, Fernández de Mera JJ, Pimentel Leo JJ, Sáenz de Santamaria J. [Epididymal malacoplakia in a heart transplant recipient: clinico-pathologic study of a case]. *Arch Esp Urol.* 1996;49(2):172-176.
11. Rémond B, Domp martin A, De Pontville M, Moreau A, Mandard JC, Leroy D. [Cutaneous malacoplakia in heart transplanted patient]. *Ann Dermatol Venereol.* 1993;120(11):805-808.
12. Seth N, Geetha SD, Tam W, Zhao Y. Scrotal Malakoplakia in a Post-Lung Transplant Patient: A Case Report. *Int J Surg Pathol.* 2025;33(6):1495-1498. doi:10.1177/10668969251316910
13. Grewal HS, Virk RK, Carroll ME, et al. Malakoplakia Presenting as a Lung Mass in a Lung Transplant Recipient: Case Report. *Transplant Proc.* 2022;54(1):173-175. doi:10.1016/j.transproceed.2021.11.013
14. Nickel IC, Boys JA, Dill EA, Weder MM, Krupnick AS, Walters DM. Pulmonary malakoplakia secondary to *Rhodococcus equi* infection mimicking a lung neoplasm in a lung transplant recipient. *Am J Transplant.* 2019;19(2):597-600. doi:10.1111/ajt.15045
15. Shafijan S. Colonic malakoplakia in a cardiac transplant recipient: A case report. *Indian J Pathol Microbiol.* 2020;63(2):322. doi:10.4103/IJPM.IJPM_144_19