

# Horseshoe abscesses in primary care

Jeremy Rezmovitz MSc MD CCFP   Ian MacPhee MD PhD FCFP   Graeme Schwindt MD PhD CCFP

**A**norectal abscesses are a common presentation in primary care. While most abscesses are mild and can be treated effectively with incision and drainage, unrecognized anorectal abscesses might cause sepsis and ultimately require surgery if left untreated.<sup>1-4</sup> In this case, we demonstrate the importance of recognizing the evolution of symptoms in the face of an unusual presentation of perianal pain not responding to medical treatment.

## Case

A 68-year-old man presented to his family physician with a 3-day history of gradual difficulty in passing urine and stool. While the patient was able to pass gas, he was finding it painful to walk owing to rectal discomfort and reported 1 day of "chills." He denied hematuria, hematochezia, dysuria, nausea, vomiting, or fever, and had no history of sexually transmitted infections. He had been taking ibuprofen since the pain began and was able to urinate during his visit. His past medical history included type 2 diabetes mellitus, atrial fibrillation, and hypercholesterolemia. At the time of presentation, he was taking

metformin, glimepiride, atorvastatin, and low-dose acetylsalicylic acid.

On physical examination, the patient was in no distress. He was obese (body mass index of 35 kg/m<sup>2</sup>) and afebrile, his blood pressure was 143/75 mm Hg, and his heart rate was 99 beats/min and regular. Findings of a digital rectal examination (DRE) demonstrated multiple nonthrombosed external hemorrhoids and a normal-sized but exquisitely tender prostate. He was diagnosed clinically with prostatitis. Investigations were ordered, including complete blood count and urine testing for culture, gonorrhea, and chlamydia; the results showed no abnormality except a white blood cell count (WBC) of  $9.2 \times 10^9/L$ , the upper limit of normal. A 14-day course of sulfamethoxazole (800 mg) and trimethoprim (160 mg) was prescribed, and the patient was asked to return to the clinic for reassessment of his symptoms at the end of the treatment plan or if symptoms worsened.

During the following 5 days after initiating antibiotic treatment, the patient went to the emergency department on 2 occasions (day 3 and day 5). He was

## Editor's key points

- ▶ A horseshoe abscess can be difficult to initially diagnose, given its location around the internal anal sphincter in the intersphincteric or ischioanal fossae. Symptoms vary from mild local warmth and tenderness to life-threatening sepsis. Imaging of these abscesses can be done with computed tomography, ultrasound, or magnetic resonance imaging. However, in this case, findings of 3 initial computed tomography scans failed to identify the abscess.
- ▶ It is important to perform a proper physical examination of patients, maintain continuity of care, and closely monitor patients for changes in presentation. Early consultation with a general surgeon can assist family physicians in early diagnosis, developing a management plan, and coordinating care.
- ▶ The proper management of a perianal abscess involves draining it in a timely manner before a fistula or sepsis can develop. If a fistula is identified, surgical management is preferred and can include identification or removal of the fistula tract in a non-operative setting.

## Points de repère du rédacteur

- ▶ Initialement, il peut être difficile de diagnostiquer un abcès en fer à cheval, étant donné son emplacement autour du sphincter anal interne, dans l'espace intersphinctérien ou la fosse ischio-rectale. Les symptômes varient depuis une chaleur et une sensibilité légères locales jusqu'à un sepsis possiblement mortel. Les examens par imagerie de tels abcès peuvent se faire par tomodensitométrie, échographie ou imagerie par résonance magnétique. Toutefois, dans le cas présent, les constatations des 3 tomodensitométries initiales n'ont pas permis de détecter l'abcès.
- ▶ Il importe de procéder à un examen physique approprié des patients, de maintenir la continuité des soins et d'exercer une surveillance étroite pour détecter tout changement dans la présentation. Une demande de consultation hâtive en chirurgie générale peut aider les médecins de famille à poser rapidement le diagnostic, à élaborer un plan de prise en charge et à coordonner les soins.
- ▶ Le traitement approprié d'un abcès péréal anal comporte un drainage en temps opportun, avant que se développe une fistule ou un sepsis. S'il s'agit d'une fistule, la prise en charge chirurgicale est privilégiée et peut comporter l'identification ou l'ablation du tractus fistulaire en milieu non opératoire.

admitted during his second visit with worsening symptoms and perianal pain and was found to have an elevated WBC of  $17.8 \times 10^9/L$ . When he was admitted to hospital, findings of a physical examination revealed perianal erythema and tenderness on the posterior wall of the rectum but no palpable collection. Findings of an abdominal and pelvic computed tomography (CT) scan showed a bilateral soft-tissue prominence along the course of the levator ani surrounding the rectum and ill-defined fat stranding around the bladder and pelvis. As the cause of the apparent inflammatory process in the pelvis was uncertain, the patient was admitted to the general internal medicine department with a presumptive diagnosis of perianal cellulitis. The patient was given intravenous piperacillin and tazobactam, and the infectious disease, urology, and gastroenterology departments were consulted with the consensus being that no surgical intervention was required.

On day 2 of his admission to hospital, the patient underwent another CT scan of the abdomen and pelvis, and the on-call radiologist identified a collection to the right of the gluteal cleft that likely represented a small abscess. A surgeon was consulted on day 3 of hospitalization when the patient had a hypotensive episode, he developed a fever of  $39.1^\circ C$ , and findings of a DRE demonstrated a large fluctuant area consistent with a perianal abscess. With a WBC of  $16.3 \times 10^9/L$ , a C-reactive protein level of 2952 nmol/L (310 mg/L), and findings of a fourth CT scan (those of a third scan were negligible) of the pelvis that showed an ischiorectal abscess of 4 cm, the patient was booked for incision and drainage in the operating room and given intravenous antibiotics (500 mg of metronidazole and 2 g of cefazolin). On examination under anesthesia, there was a space connected superficially to the right and left perianal and ischiorectal spaces from the 4:30 to 7:30 clock positions, producing a deep horseshoe abscess. After the area in question was incised, copious purulent material was expressed. The area was irrigated, a Penrose drain placed, and intravenous antibiotics resumed for 3 more days before hospital discharge, when the patient's treatment was converted to 875 mg of oral amoxicillin-clavulanic acid twice a day for 10 days.

At outpatient follow-up 1 month later, the patient had improved markedly but still had purulent drainage from the abscess and mild cellulitis. It was suggested that the patient undergo an examination under anesthesia, with conversion of the Penrose drain to a smaller drainage catheter. A telephone interview with the patient 3 months later revealed he was doing well, still had the Penrose drain, and was awaiting a staged fistulotomy.

## Discussion

The incidence of anorectal abscesses is estimated at between 68 000 and 96 000 cases per year in the United

States (US), but it is hard to know exactly how many, as most drain spontaneously or are incised and drained in a primary care setting.<sup>2</sup> As many patients initially present to their family doctors, where early detection and treatment are more cost effective, it is valuable for family physicians to be knowledgeable about this relatively common and treatable condition. The differential diagnoses for a perianal abscess include anal fistula (annual incidence of 1.1 cases per 1000 in the US<sup>3</sup>), pilonidal disease (annual incidence of 26 per 100 000 in the US<sup>4,5</sup>), and prostatitis or prostatic abscess in men.<sup>6</sup> It is also important to stress that an anorectal abscess can be the initial presentation of inflammatory bowel disease (IBD) (prevalence of approximately 0.67%, with about 10% to 30% of patients with IBD developing an abscess in their lifetimes<sup>7</sup>) and thus screening for IBD should be considered.<sup>8,9</sup>

The horseshoe abscess is named for its characteristic U shape, as it extends semicircumferentially around the internal anal sphincter in the intersphincteric or ischiorectal fossae.<sup>10-12</sup> As in this case, it can be difficult to identify the cause of the patient's symptoms with perianal abscesses, as symptoms vary from mild local warmth and tenderness to life-threatening sepsis.<sup>13</sup>


An anorectal abscess most commonly originates from an infection of the anal glands. This process can result in either a high intersphincteric abscess or a collection in the supralelevator or ischiorectal space. More rarely the collection extends deep and circumferentially to bilateral ischiorectal or intersphincteric spaces, producing a horseshoe abscess as in our case.<sup>2,12,14</sup>

Isolates vary and include Gram-negative bacilli, Gram-positive cocci, anaerobes, and less commonly *Candida* species. Broad-spectrum empiric antibiotic coverage including piperacillin and tazobactam, while controversial, is reasonable when systemic inflammatory features or sepsis develop, or if the patient is immunocompromised or has a history of diabetes mellitus.<sup>15</sup> The proper management for a perianal abscess involves draining it in a timely manner before a fistula or sepsis can develop. If a fistula is identified, surgical management is preferred and can include identification or removal of the fistula tract in a non-operative setting. Because of the possibility of these serious complications, a family physician should consider consulting a general surgeon if possible to help guide the patient's care and prepare for possible intervention.

For outpatient investigations, imaging of these abscesses can be done with CT, ultrasound, or magnetic resonance imaging. However, in this case, findings of 3 initial CT scans failed to identify the abscess. Furthermore, one cannot stress enough the importance of a proper physical examination of patients and continuity of care, and the need for physicians to closely monitor patients for changes in presentation. In this case specifically, the exquisitely tender prostate on DRE and absence of perianal fluctuance or erythema led to the initial

incorrect diagnosis of prostatitis. Ultimately, it was time and evolution of symptoms that played a key role in the correct diagnosis and management of this patient.

## Conclusion

This case demonstrates how difficult it can be to identify a horseshoe abscess early on. In our patient's case, it took 11 days from onset of symptoms until the correct diagnosis was made and definitive management was undertaken. Involving a general surgeon earlier in the care of the patient could possibly have altered the clinical course of the abscess. 

**Dr Rezmovitz** is a family physician at Sunnybrook Health Sciences Centre in Toronto, Ont, and Lead for CPD and Innovation in the Department of Family and Community Medicine at the University of Toronto. **Dr MacPhee** is a family physician at the Chancellors Way Medical Arts Centre in Guelph, Ont, and Lecturer in the Department of Family and Community Medicine at the University of Toronto. **Dr Schwindt** is a community family physician practising in Toronto.

## Acknowledgment

We thank the patient for giving us permission to describe the case; the Sunnybrook Health Sciences Centre Peer Support Writing Group; and **Heather Davidson** in the Primary Care Research Unit at the Sunnybrook Academic Family Health Team for her assistance in manuscript preparation.

## Competing interests

None declared

## Correspondence

**Dr Jeremy Rezmovitz**; e-mail [jrezmovitz@gmail.com](mailto:jrezmovitz@gmail.com)

## References

1. Azizi R, Mohammadipour S. New techniques in anal fistula management. *Ann Colorectal Res* 2014;2(1):e17769. Epub 2014 Mar 30.

2. Abcarian H. Anorectal infection: abscess-fistula. *Clin Colon Rectal Surg* 2011;24(1):14-21.
3. Mapel DW, Schum M, Von Worley A. The epidemiology and treatment of anal fissures in a population-based cohort. *BMC Gastroenterol* 2014;14:129.
4. Søndena K, Andersen E, Nesvik I, Søreide JA. Patient characteristics and symptoms in chronic pilonidal sinus disease. *Int J Colorectal Dis* 1995;10(1):39-42.
5. Bendewald FP, Cima RR. Pilonidal disease. *Clin Colon Rectal Surg* 2007;20(2):86-95.
6. Klein JW. Common anal problems. *Med Clin North Am* 2014;98(3):609-23. Epub 2014 Mar 21.
7. Richards RJ. Management of abdominal and pelvic abscess in Crohn's disease. *World J Gastrointest Endosc* 2011;3(11):209-12.
8. Rocchi A, Benchimol EI, Bernstein CN, Bitton A, Feagan B, Panaccione R, et al. Inflammatory bowel disease: a Canadian burden of illness review. *Can J Gastroenterol* 2012;26(11):811-7.
9. Thomas T, Chandan JS, Harvey PR, Bhala N, Ghosh S, Nirantharakumar K, et al. The risk of inflammatory bowel disease in subjects presenting with perianal abscess: findings from the THIN database. *J Crohns Colitis* 2019;13(5):600-6. Epub 2018 Dec 13.
10. Inceoglu R, Gencosmanoglu R. Fistulotomy and drainage of deep postanal space abscess in the treatment of posterior horseshoe fistula. *BMC Surg* 2003;3:10.
11. Ramanujam PS, Prasad ML, Abcarian H, Tan AB. Perianal abscesses and fistulas. A study of 1023 patients. *Dis Colon Rectum* 1984;27(9):593-7.
12. Chawla A, Tan MO, Subramanian M, Bosco JJ. The perianal "horseshoe". *Abdom Radiol (NY)* 2016;41(1):203-4.
13. Chen CY, Cheng A, Huang SY, Sheng WH, Liu JH, Ko BS, et al. Clinical and microbiological characteristics of perianal infections in adult patients with acute leukemia. *PLoS One* 2013;8(4):e60624. Epub 2013 Apr 5.
14. Altemeier WA, Culbertson WR, Fullen WD, Shook CD. Intra-abdominal abscesses. *Am J Surg* 1973;125(1):70-9.
15. Whiteford MH, Kilkenny J 3rd, Hyman N, Buie WD, Cohen J, Orsay C, et al. Practice parameters for the treatment of perianal abscess and fistula-in-ano (revised). *Dis Colon Rectum* 2005;48(7):1337-42.

This article has been peer reviewed.

Cet article a fait l'objet d'une révision par des pairs.

*Can Fam Physician* 2019;65:476-8