

Omphalith-Associated Relapsing Umbilical Cellulitis: Recurrent Omphalitis Secondary to a Hair-Containing Belly Button Bezoar

Philip R. Cohen, MD; Floyd W. Robinson, BS; James M. Gray, MD

We report an 18-year-old man with recurrent cellulitis of his umbilicus and surrounding skin. Thorough investigation revealed a foreign body as the source of his relapsing infection, a compact collection of terminal hair shafts. Spontaneously occurring stonelike foreign bodies resulting from the accumulation and concretion of keratinous and amorphous sebaceous material within the umbilicus are referred to as omphaliths. However, because the composition of our patient's foreign body is pilar in origin, we propose that the foreign body be designated as either an omphalotrich or trichomphalith. Alternatively, because the umbilicus and epithelium of the gastrointestinal tract are embryologically related, we suggest that our patient's hair-containing foreign body be referred to as a trichobezoar, which is used to describe exogenous foreign bodies composed of ingested hair in the gastrointestinal tract. The patient's cellulitis resolved without any subsequent episodes following the removal of his belly button bezoar.

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Omphaliths are stonelike foreign bodies composed of keratinous and amorphous sebaceous material that spontaneously appear in the umbilicus.¹ We describe the case of a young man who developed recurrent omphalitis associated with a

previously undetected umbilical foreign body. Complete removal of the infection-inducing omphalith that contained compact hair shafts resulted in prompt resolution of his umbilical cellulitis without any subsequent relapses.

Case Report

An 18-year-old man presented for evaluation of his painful red umbilicus that was oozing pus. He had a 5-year history of recurrent umbilical discharge and infection.

Physical examination revealed erythema of the umbilicus and adjacent skin. The area was tender to palpation and a serosanguineous exudate was weeping from his endophytic umbilicus. A firm indurated tissue nodule extended into the umbilical opening (Figure 1).

A cotton-tipped applicator was used to explore the umbilicus. A deeply located and partially obstructed umbilical cleft was discovered. Firm movement of the applicator to define the depth and boundaries of the cavity resulted in removal of a compact collection of terminal hair shafts (Figure 2). Careful inspection of the umbilicus did not show any fistulas or abscesses.

Empiric systemic treatment was started with oral cephalexin at a dosage of 500 mg 4 times daily for 10 days. Topical care included Burow solution and mupirocin ointment 2% applied 3 times daily. Follow-up examination 5 days later showed complete resolution of erythema and tenderness in the umbilicus and surrounding area.

Comment

Umbilical foreign bodies commonly are introduced by the patient. Usually they are adornments for

All from the University of Houston Health Center, Texas. Dr. Cohen also is from the Department of Dermatology, The University of Texas MD Anderson Cancer Center, Houston, and the Department of Dermatology, University of Texas Medical School at Houston. The authors report no conflict of interest. Correspondence: Philip R. Cohen, MD, 805 Anderson St, Bellaire, TX 77401 (mitehead@aol.com).



Figure 1. Erythema surrounding the umbilicus and extending across the adjacent abdomen (A). A closer view shows the serosanguineous exudate that was draining from the inflamed umbilicus (B).

cosmetic purposes that have been acquired by body piercing.^{2,3} Less commonly they are objects, such as pens and matchsticks, that have been inserted into the abdomen through the umbilicus in individuals with emotional disorders.⁴ Occasionally, postoperative suture material following inguinal hernia repair also has presented as a foreign body in the umbilicus.^{5,6} Complications such as pain, cellulitis, and discharge caused by umbilical foreign bodies may subsequently occur.²⁻⁶

Spontaneously appearing umbilical masses also can occur, resulting from embryologic abnormalities (ie, omphalomesenteric remnants, urachal anomalies), benign lesions (ie, cholesteatomas, dermatofibromas, dermoid cysts, epidermoid cysts, keloids, omphaliths), malignant tumors (ie, melanoma, metastases from internal malignancies), and localized or systemic conditions (ie, chronic granulomas, endometriosis).^{1,7} Biopsy often is necessary to establish the diagnosis.

An omphalith is an umbilical foreign body resulting from the accumulation and concretion of keratinous and amorphous sebaceous material.¹ The term comes from the Greek words *omphalos* (meaning navel) and *lithos* (meaning stone).^{1,7} Others have referred to the lesion as an omphalolith⁸ or Cullen umbilical concretion.⁹ Friedman and Liles,⁷ wanting to stress the keratin composition of the umbilical mass, added *kerato* from the Greek word *keras* (meaning horn) to the name of the lesion; they introduced the term *omphalokeratolith*. However, the term *omphalith* is most common.

Reports of patients with omphaliths are rare.^{1,7-11} Omphaliths usually present as asymptomatic black umbilical masses. There may be an accompanying putrid odor or drainage from the moist base of

the umbilicus; however, the lesion itself neither drains nor smells. Microscopic examination of an omphalith typically shows laminated keratin interspersed with amorphous material that resembles sebum; the material also may contain bacteria or hair or both.

The pathogenesis of omphalith development is postulated to be related to both the anatomy of the area and the patient's hygiene. Individuals with an omphalith, as in our case, often have a deeply set umbilical cleft that may predispose to the accumulation of keratin and sebum. In addition, this variation of the umbilical anatomy may make adequate hygiene of the area difficult.^{1,7}

In contrast to the previously described omphaliths, our patient's umbilical foreign body was composed of a compact collection of terminal hair



Figure 2. The foreign body that was extracted from the base of the patient's umbilicus included a compact collection of terminal hair shafts.

shafts. Therefore, instead of the term *omphalith*, which emphasizes the stonelike quality of these navel masses, we suggest an alternative designation for our patient's hair-containing umbilical foreign body that more appropriately highlights the pilar, or tricho, composition of the mass in his navel: omphalotrich or trichomphalith.

Bezoar, a potential cause of intestinal obstruction, is a descriptive term for concretions of foreign material in the stomach, the small intestine, or the large bowel. Bezoar is adapted from the Persian word *padzahr* that describes an antipoisoning practice of the kings of ancient Persia. The monarchs, who were frequently the targets of poisoning, attributed magical protective powers to a calculus obtained from the intestinal tract of the Persian mountain goat. They would place the calculus at the bottom of their wine cups because they believed that the porous structure would absorb poisons. The word *bezoar* also is derived from the Arabic words *bezahr* and *bedzehr*, which mean an antidote.¹²⁻¹⁴

Several types of bezoars have been observed with classification dependent on the composition of the ingested foreign body: lactobezoars (from milk curds), pharmacobezoars (from medications), phytobezoars (from the fibers or seeds of fruits and vegetables), and trichobezoars (from ingested hair).¹²⁻¹⁹ Less common sources of bezoars include cotton, high-fiber foods, iron, paper, plastic, and synthetic glue.¹² Vaughan et al²⁰ introduced the term *Rapunzel syndrome* when a gastric trichobezoar presented with a contiguous extension of hair into the jejunum of the small intestine²⁰⁻²²; they named the syndrome after the Grimm Brothers' long-haired maiden, described in 1812, who enabled her Prince Charming to rescue her from her prison tower by lowering her tresses.¹⁵

Although the umbilicus is not contiguous with the alimentary tract, the mucosal membrane of the gastrointestinal tract and the umbilicus both are derived from the fetal yolk sac.²³ Because both of these body structures are embryologically related, it is reasonable to refer to foreign bodies of the umbilicus as bezoars. Therefore, we suggest that our patient's foreign body also could be considered a trichobezoar and his recurrent umbilical cellulitis was secondary to a belly button bezoar.

Conclusion

An omphalith is a rare umbilical mass consisting of an accumulation and subsequent concretion of keratin and sebum. A young adult with recurrent cellulitis of the umbilicus and surrounding area experienced prompt and permanent resolution of his infection following the removal of a previously

undiscovered umbilical foreign body composed of compact terminal hairs. To emphasize the pilar, or tricho, etiology of our patient's umbilical foreign body, we introduce new terms to describe his umbilical mass: omphalotrich and trichomphalith. A bezoar is a foreign body within the gastrointestinal tract that can result in obstruction; the nomenclature of bezoars is based on the material that has been ingested. The umbilicus and the primitive gut are both derived from the fetal yolk sac. Therefore, similar to a hair-containing foreign body of the gastrointestinal tract, we suggest that a foreign body of similar composition in the embryologically related umbilicus should be referred to as a trichobezoar.

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