



INDUS JOURNAL OF BIOSCIENCES RESEARCH

<https://induspublisher.com/IJBR>

ISSN: 2960-2793/ 2960-2807



Incidental Umbilicolith Encountered in Laparoscopic Paraumbilical Hernia Repair Surgery-A Case Report

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ARTICLE INFO

Keywords

Concretions, Keratin, Sebum, Omphalolith, Umbilicolith.

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Declaration

Author's Contributions: All authors contributed to the study and approved the final manuscript.

Conflict of Interest: The authors declare no conflict of interest.

Funding: No funding received.

Article History

Received: 03-10-2024

Revised: 26-11-2024

Accepted: 03-12-2024

ABSTRACT

Umbilicolith is derived from the Latin word "umbilicus" and "lithos,". It refers to a rare and enigmatic dermatologic condition characterized by the accumulation of sebum, keratin, and other debris and the formation of calcified concretions within the umbilical cavity. This condition is also known as an omphalolith. It is typically asymptomatic. The etiology of this entity remains largely unknown. However, it has been postulated to be associated with various factors. These are poor hygiene, infections, and chronic inflammation. Hence, in this case report, we present the case of a female patient who presented with a paraumbilical hernia. She was found to have an umbilicolith during laparoscopic hernia repair.

INTRODUCTION

In the center of the abdomen there is a depression called the umbilicus. This is a cord that is attached to the embryo [1]. Hence, this is a vulnerable and soft area for various diseases such as endometriosis and metastasis (Mary Joseph's nodule) [2]. Umbilical concretions are also known as omphaliths, omphaloliths, omphalokeratoliths, and umbololiths [3].

The Latin words "umbilicus" and "lithos," from which the term umbilicolith is derived that refers to a rare calcified mass that develops within

the umbilicus. This is a benign entity which is rarely encountered with primarily of sebaceous and keratinaceous material which collects within an unusually deep umbilical cleft. Hence, these are rarely discussed in the literature of medical science. Moreover, Dr. Thomas Cullen has described in a series of twenty-eight cases titled "The Umbilicus and its Diseases" which is published in the second decade of nineteenth century [4]. It was incidentally detected during paraumbilical hernia repair in a 39-year-old female patient.

Case Presentation

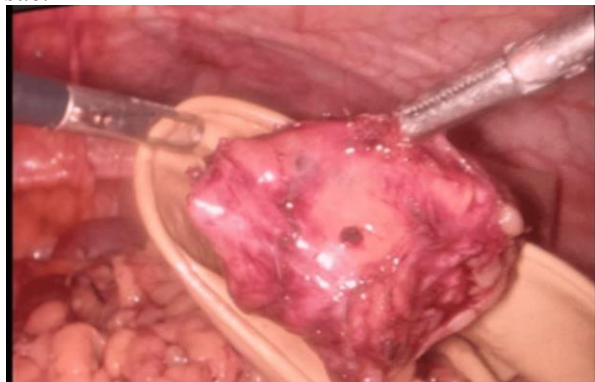
A 39-year-old female known case of HTN presented to the outpatient department of Ziauddin Hospital, Karachi, in March 2023. She was with a 4-month history of swelling around her umbilical area that causes pain on coughing or straining. Hence, the physical examination revealed a paraumbilical swelling measuring 4cm in diameter. Thus, an ultrasound confirmed the presence of a reducible hernia. The patient was scheduled for laparoscopic hernia repair under general anesthesia.

During the laparoscopic procedure, a small incision was made near the umbilicus. Hence, a camera was inserted to visualize the hernia defect. During diagnosing, an unexpected finding was noted: a small, hard, white mass was found inside the hernia sac, which was later identified as an umbilicolith. This can be shown in figure 1.

How to cite this article

Figure 1

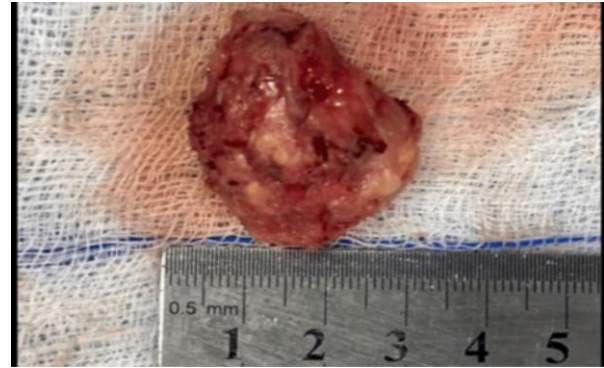
Laparoscopic View of Umbilicolith Intraoperative laparoscopic view showing the umbilicolith (black arrow) firmly lodged within the paraumbilical hernia sac.



The hernia sac was dissected and the umbilicolith was removed. The extracted umbilicolith, measuring approximately 3 mm in size, is shown in Figure 2.

Figure 2

Extracted Umbilicolith The extracted umbilicolith following meticulous laparoscopic removal, measured approximately 3 mm in size.



Therefore, the hernia was repaired with mesh using the standard laparoscopic technique. Moreover, A cut section of the extracted umbilicolith, showing its internal structure and composition, is illustrated in Figure 3.

Figure 3

Cut Section of Extracted Umbilicolith The extracted umbilicolith (white arrow) displayed after successful laparoscopic removal from the paraumbilical hernia sac. A cut section of the calcified mass reveals its internal structure and composition



Post-operative recovery was uneventful, and the patient was discharged home the same day. A follow-up visit was scheduled for 2 weeks after surgery. During this, the patient reported a complete resolution of her pain and swelling.

DISCUSSION

Umbilicoliths, also known as omphaloliths, are rare findings in patients with paraumbilical hernias. Umbilicoliths are typically small, hard stones or concretions. That develop in the umbilical region. They are formed when debris, such as hair or skin cells, becomes trapped in the umbilical cavity and hardens over time. Therefore, the exact cause of umbilicoliths is not fully understood. However,

they are thought to develop due to poor hygiene or an umbilical hernia, which is a protrusion of abdominal contents through the umbilical opening.

Umbolith is generally asymptomatic and the affected patient most often seeks medical attention only in case of secondary inflammation or infection [5]. A deep inverted umbilicus and poor hygiene often result in this condition. Patients generally present with a firm, black umbilical mass, resembling a malignant melanoma [6]. Patients usually complain of umbilical discharge and pain. The symptoms of umbilicoliths can vary depending on the size and location of the stone or concretion. Some common symptoms include pain, swelling, redness, and discharge from the belly button [7]. The discharge may be foul-smelling and may contain pus or blood.

For several years, Omphalolith usually remains asymptomatic. Sometimes it can be noticed by chance. However, it can be diagnosed after secondary complications. Repetitive trauma can cause irritation, erosions, bleeding, and pyogenic granuloma. The symptoms of this condition can be revealed in secondary infection, abscess formation, cellulite, or even peritonitis [8]. Hence during clinical examination, we can diagnose the omphalolith. Dermoscopy shows aggregates of pigmented keratin. Laminated Keratin associated with amorphous sebaceous material reveals during histopathological examination [3]. Differential diagnoses include malignant tumors comprising Mary Joseph's nodule and malignant melanoma. Benign affections can mimic umbilical concretion such as keloids, dermatofibroma, cholesteatoma, umbilical endometriosis, foreign bodies like terminal hairs (trichobezoar) and persistent omphalomesenteric duct [9]. To avoid unnecessary anxiety and investigation we need an early recognition of omphalolith. Diagnosing umbilicoliths typically involves a physical examination of the umbilical region. In some cases, imaging tests such as an ultrasound or CT scan may be performed to help visualize the stone or concretion [10]. However, in this case, the diagnosis was made intraoperatively during laparoscopic hernia repair [11].

Treatment for umbilicoliths typically involves removing the stone or concretion surgically. This may be done under local or general anesthesia, depending on the size and location of the umbilicolith. After the stone or concretion is

removed, the area may be irrigated with saline solution to remove any remaining debris or bacteria. Antibiotics may also be prescribed to prevent infection [12, 13].

In some cases, a small amount of tissue may need to be removed along with the umbilicolith. This is more common in cases where the umbilicolith has caused significant damage to the surrounding tissue.

After surgery, the wound will need to be kept clean and dry to prevent infection. Most people recover fully within a few weeks of surgery, with no long-term complications.

CONCLUSIONS

In conclusion, this case highlights the importance of being vigilant for unexpected findings during laparoscopic hernia repair, as umbilicoliths can present as a rare but significant finding. Early diagnosis and removal of these calcified masses can lead to complete resolution of symptoms and prevent complications such as infection and abscess formation.

While encountering atypical masses in the umbilical region, this patient needs for surgeons to consider the incidental discovery of an umbilicolith. Furthermore, for enhancing patient outcomes a high index of suspicion is required for such rare entities that can facilitates timely and appropriate intervention. By documenting and sharing these rare cases, the medical community can better understand the presentation and management of umbilicoliths, contributing to more comprehensive care in similar future cases.

Additional Information

Disclosures

Human subjects

Consent was obtained or waived by all participants in this study. This study titled as 'Incidental Umbilicolith Encountered in Laparoscopic Paraumbilical Hernia Repair Surgery- A Case Report' was approved by the Dr. Jamil Muqtadir. All procedures complied with the ethical standards. Informed consent was obtained from the participant. . **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial

relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other**

relationships: All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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