

Anomaly of Omphalomesenteric Duct Remnant in a 5-year-old Male Child: A Case Report

Neera Pathak Pangeni¹, Moni Subedi², Ramana Rajkarnikar³, Aadarsha Bhandari⁴

¹ Senior consultant pathologist, Department of Pathology, Kanti Children Hospital, Kathmandu, Nepal

² Senior consultant histopathologist, Department of Pathology, Kanti Children Hospital, Kathmandu, Nepal

³ Senior consultant Surgeon, Department of Paediatric surgery, Kanti Children Hospital, Kathmandu, Nepal

⁴ Aadarsha Bhandari, MBBS student, Maharajgunj Medical Campus, Institute of Medicine, Kathmandu, Nepal

Article History

Received: 10th February, 2025

Acceptance: 5th November, 2025



Abstract

Umbilical polyps are the remnants of incomplete obliteration of the omphalomesenteric duct (synonymous to vitellointestinal duct). They are firm, reddish nodules found in the depth of the umbilicus which can often be mistaken for granulomas. In our index case, a 5-year-old male patient presented with umbilical mass from 4 month of life which on physical examination showed red, erythematous, single swelling. Ultrasonography diagnosed as umbilical granuloma. Excision was done and sent for Histopathological Examination (HPE). The final diagnosis of omphalomesenteric duct remnant consistent with umbilical polyp was made upon histopathological examination. The histopathology of Vitellointestinal Duct (VID) anomalies/omphalomesenteric duct remnant presents a complex diagnostic challenge for the pathologist.

Keywords: Duct; Omphalomesenteric; Polyp; Remnant; Umbilicus.

Corresponding Author:

Neera Pathak Pangeni

Senior consultant Pathologist

Department of Pathology, Kanti Children

Hospital, Kathmandu, Nepal

Email: neerap333@gmail.com

Introduction

The umbilicus during the intrauterine life carries three umbilical vessels (a pair of arteries and a vein), vitellointestinal duct (VID) and allantois (later urachus). The VID appears at the end of third week as a tube that connects yolk sac to the midgut and disappears at around five to nine weeks when placental nutrition is established.¹ The failure of the VID to obliterate leads to different vitellointestinal duct anomalies such as Meckel's diverticulum, patent VID, vitelline cyst, persistent fibrous band, umbilical sinus and umbilical polyp.¹

An umbilical polyp is an uncommon form of VID anomaly containing intestinal mucosa at the umbilicus. Clinically, it usually presents as small, painless red or pink swelling. It can often be confused as umbilical granuloma which is usually smaller and responds to silver nitrate while the former requires surgical excision.²

Case Report

The patient is a 5-year-old male brought by his parents with

chief complaints of protrusion of mass from umbilicus noticed by them at the age of four months of life. The mass was painless, gradually increasing in size for one and half years. There was no history of discharge of urine or fecal material. Physical examination showed anicteric, absence of pallor and not dehydrated. Weight of the male child was 15.5 kg. Patient was afebrile with pulse of 104 beats per minute, respiratory rate of 28 breaths per minute. Abdominal examination showed a single, red, erythematous periumbilical swelling. A diagnosis of umbilical granuloma was made clinically and ultrasonographically. Excision was done and biopsy was sent for histopathological examination.

Gross examination showed a single, irregular, greybrown, soft to firm tissue measuring 2x1.5x0.6 cm. Cut section was solid, grey white to grey-brown. Histologic sections showed a benign polypoidal lesion partly lined by intestinal epithelium. Crypts were lined by goblet cells. Lamina propria was expanded by mild chronic inflammatory cell infiltration mainly lymphocytes, plasma cells and occasional eosinophils. The overall histomorphological features favoured the

How to Cite this Article in Vancouver Style:

Pangeni NP, Subedi M, Rajkarnikar R, Bhandari A. Anomaly of Omphalomesenteric Duct Remnant in a 5-year-old Male Child: A Case Report. Med. J. Pokhara A. Health Sci. 2025;8(2):41-43.

Copyrights & Licensing © 2025 by author(s). This is an Open Access article distributed under Creative Commons Attribution License (CC BY 4.0)



diagnosis of omphalomesenteric duct (OMD) (synonymous to vitellointestinal duct) remnant consistent with umbilical polyp.

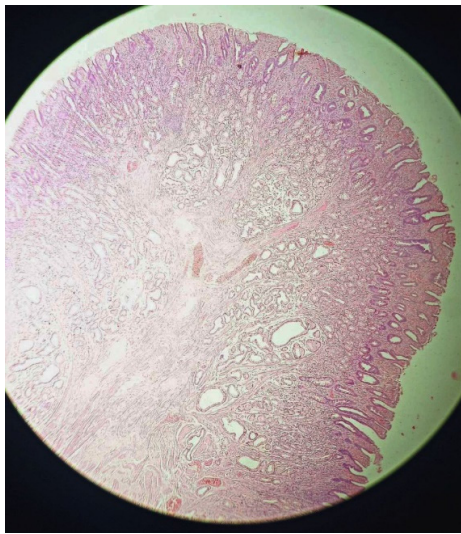


Fig 1: benign polypoidal tissue (H&E, 40x magnification)

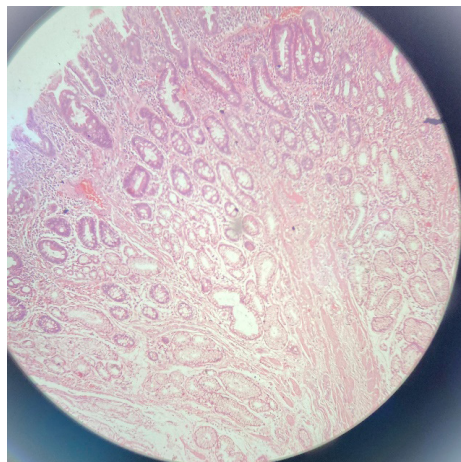


Fig 2: umbilical polyp showing crypts and goblet cells (H&E, 100x magnification)

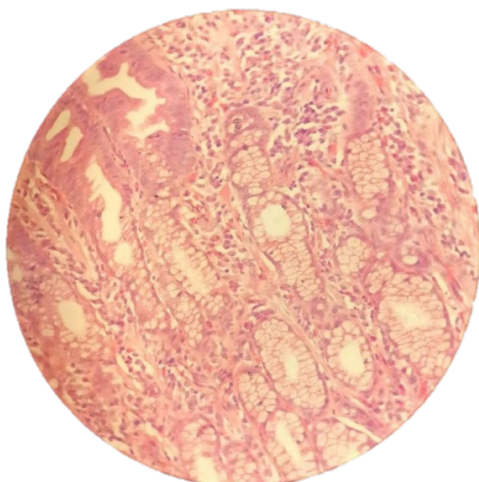


Fig 3: Expansion of lamina propria by mixed chronic inflammatory cells infiltration (H&E, 400x magnification)

Discussion

The umbilical polyps are rare abnormalities and are usually diagnosed in neonates, especially the congenital one. Although lesions have been found in older children and in adults, but in the latter, they are exceptional, and it is usually neoplastic, and of course it is an acquired lesion, with a wide spectrum of different pathologies.¹

Lee et al. of Keimyung university Dongsan hospital found only nine umbilical polyps among 137 cases of paediatric umbilical masses, consisting 15 OMD remnants.³

Gaopande et al. of General Hospital, India found only one umbilical polyp among 15 cases of umbilical lesions seen from the age of nine months to 45 years over a 24-month period.⁴

In a study done by Pacilli et al. in Great Ormand Street Hospital, University College London, over a 10-year period, out of 53 umbilical lesions, 13 cases of umbilical polyp were found in infant and children below seven years of age.⁵

Clinical presentations of umbilical lesions vary according to the age of the patients. Among newborns, delayed umbilical separation and omphalitis are common while in childhood and among adults, umbilical mass and umbilical discharge or wet umbilicus take precedence.² Pacilli et al. reported umbilical polyp presenting with umbilical discharge in all the 13 cases and associated bleeding in nine cases.⁵ Our index case presented with no discharge from the swelling.

OMD malformations are found with equal frequency among the sexes, although significantly greater incidence of symptoms is encountered in males.⁶ The patient in our case is a 5-year-old male.

The differential diagnoses include patent urachus, haemangiomas, omphalocele. However, the closest differential diagnosis is umbilical granuloma. As the treatment modalities differ, the differentiation is crucial.

The histomorphological features and the differential diagnoses must be studied and well understood. Umbilical polyp usually contain small intestinal mucosa, sometimes in association with gastric mucosa. A study done by Othuluru et al found a case of an umbilical polyp with colonic mucosa.⁷ The characteristic polypoidal architecture with remnants of intestinal mucosa (colonic) in the histology section of this index case ruled out other differential diagnoses.

The treatment of umbilical polyp show unresponsiveness to conservative management with repeated topical silver nitrate ablation, ligation or use of alcoholic wipes. Simple surgical excision is adequate as done in this case.

Conclusion

The omphalomesenteric duct (OMD) anomalies often originate from disruptions in embryological development making a deep understanding of their developmental origins essential. Additionally, a detailed histological evaluation, including recognition of characteristic tissue patterns and cellular features aids in distinguishing OMD anomalies from other pathologies. The integrated knowledge of embryology, presentation and histology help pathologists achieve accurate and confident diagnosis, ultimately guiding effective clinical management.

Limitations

This study is limited by lack of long-term patient follow up.

Informed consent: Taken

References

1. Fahmy M. Umbilical polyp. In: Fahmy M. Umbilicus and umbilical cord. Cham: Springer; 2018. 163-170. DOI: [10.1007/978-3-319-62383-2_29](https://doi.org/10.1007/978-3-319-62383-2_29)
2. Florence EI. Umbilical polyp; an anomaly of omphalomesenteric duct remnant from birth in a 3-year-old male child. Med J Dr DY Patil Vidyapeeth. 2018 Mar-Apr;11(2):175-177.
3. Lee HJ. Differential diagnosis of umbilical polyps and granulomas in children: sonographic and pathologic correlations. Ultrasonography. 2021 Apr;40(2):248-255. DOI: [10.14366/usg.20020](https://doi.org/10.14366/usg.20020)
PMID: 32660210 PMCID: PMC7994741
4. Gaopande VL, DSKS. Clinical and histopathological profile of lesions of umbilicus. Med J Dr DY Patil Vidyapeeth. 2015;8:179-81. DOI: [10.4103/0975-2870.153152](https://doi.org/10.4103/0975-2870.153152)
5. Pacilli M, SNMD. Umbilical polyp in infants and children. Eur J Pediatr Surg. 2007;17:397-399. DOI: [10.1055/s-2007-989220](https://doi.org/10.1055/s-2007-989220)
PMID: 18072023
6. TC M. Omphalomesenteric duct malformations. Semin Pediatr Surg. 1996;116-123.
7. Krishna OHR. Clinicopathological profile of paediatric vitellointestinal duct anomalies. Asian J Med Sci. 2021 Oct;12(10):117-123. DOI: [10.3126/ajms.v12i10.38233](https://doi.org/10.3126/ajms.v12i10.38233)