

CASE REPORT

Patent Vitello-Intestinal Duct: A Misdiagnosis of Persistent Umbilical Granuloma

Hei Yi Wong*, Yuk Kwan Ng, Kin Wai Edwin Chan, Kim Hung Lee

Division of Paediatric Surgery and Paediatric Urology, Department of Surgery, Prince of Wales Hospital, the Chinese University of Hong Kong, Hong Kong SAR, China

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ABSTRACT

Patent vitello-intestinal duct (VID) is a rare embryological defect. Pre-operative diagnosis may be difficult to be made by primary physicians and misdiagnosed as umbilical granuloma. We report a 24-day-old girl with repeated attempts of silk-tie ligation in primary care as she presented with a persistent umbilical mass with discharge. On referral to tertiary pediatric surgical center, diagnosis of patent VID was made, and umbilical exploration with bowel resection was performed. The patient was asymptomatic after the definitive surgery.

Key words: Patent vitello-intestinal duct; Umbilical discharge; Umbilical granuloma

INTRODUCTION

Vitello-intestinal duct (VID) anomalies are rarely encountered in clinical practice and its reported incidence rate is 0.0053%–0.0067% [1]. A wide range of presentations is expected depends on the type of remnants such as fistula, sinus tract, and congenital band. The most common diagnosis of umbilical mass with persistent discharge is umbilical granuloma. It is also a common presentation for VID. The common management strategy of umbilical granuloma is by thread ligation and chemical cauterization [2]. However, catastrophic complication may result, if VID is misdiagnosed as umbilical granuloma.

CASE REPORT

A full-term 24-day-old Chinese girl was admitted to the pediatric ward with the complaint of blood-stained discharge after silk-tie ligation of her “umbilical granuloma.” The parents noted a firm, pinkish mass after the detachment of umbilical cord, and repeated silk-tie ligation was performed by the primary physician with the provisional diagnosis of umbilical granuloma. The parents presented to the casualty department after they noticed bleeding from umbilicus post-procedure. On admission, the neonate was doing well with no symptoms or signs of intestinal obstruction. On examination,

a 1.5 cm congested fleshy mass was seen protruding from the umbilicus (Figure 1). After releasing the silk tie, the color returned to pinkish red. On detailed examination, a catheter could be inserted through a central dimple that drained a small amount of feculent discharge (Figure 2). The history and physical findings were keeping with the diagnosis of patent VID instead of simple persistent umbilical granuloma. On an emergent umbilical exploration, a patent VID remnant was found communicating with the umbilicus (Figure 3). Surgical *en-bloc* resection with primary small bowel anastomosis and umbilicoplasty was performed. The post-operative recovery was uneventful and the baby was discharged 9 days after the surgery. Histopathology confirmed the excised specimen as Meckel’s diverticulum.

DISCUSSION

VID that forms part of the umbilical cord normally attenuates and separates from fetal intestine in between 5th and 7th week of gestation. Failure of involution results in various residual remnants such as Meckel’s diverticulum, solid cord, fistula/sinus, or persistently patent duct which occur in ~2% of newborns [1,3]. Umbilical granuloma is the most common manifestation of umbilical disorder in neonate which presents as a red fleshy mass with persistent discharge after cord separation. It is caused by ongoing inflammation and thus failed to epithelialize with

Correspondence*: Dr. Hei Yi Wong, Division of Paediatric Surgery and Paediatric Urology, Department of Surgery, Prince of Wales Hospital, the Chinese University of Hong Kong, Hong Kong SAR, China

E-mail: vickywong@surgery.cuhk.edu.hk

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Figure 1: Clinical photo of “umbilical granuloma” with the silk-tie ligature *in-situ*



Figure 3: Intraoperative photo showing the communication of the patent vitello-intestinal duct with small bowel



Figure 2: Fr 5 infant feeding tube was inserted into the central dimple and confirmed to be patent vitello-intestinal duct

scar formation [2]. The exact cause is still uncertain. Classically, umbilical granuloma is managed by either chemical cauterization or ligature technique and rarely need surgical excision.

Patent VID poses a diagnostic challenge as it is rare in clinical practice and its presentation is non-specific that may mimic an umbilical granuloma [4]. However, if it is not identified and managed promptly by surgical intervention, it may lead to persistent umbilical discharge or even with the risk of prolapsed bowel [5]. Good outcome will be expected with early umbilical exploration with bowel resection and primary anastomosis. As a result, a prompt diagnosis and urgent referral by primary physician is crucial. In our case, the patent VID was misdiagnosed as umbilical granuloma and only referred to surgical unit after 2 weeks of management in primary care. If a presumed umbilical granuloma fails to respond to

usual cauterization or ligature method, other differential diagnoses need to be considered and further investigations may be warranted such as ultrasonography [6,7]. A high clinical suspicion is essential to reach a correct diagnosis of patent VID and a detailed physical examination with simple maneuver such as the identification of central dimple and probing with catheter may aid the diagnosis.

CONCLUSION

Patent VID is rarely seen in clinical practice and may be easily missed pre-operatively; it should be clinically suspected if an “umbilical granuloma” fails to respond to the conventional management.

Author’s Contribution

All authors contributed equally in concept, design, literature review, drafting the manuscript, and approval of the final manuscript.

Consent Statement

Authors declared that they have taken informed written consent, for publication of this report along with clinical photographs/material, from the legal guardian of the patient with an understanding that every effort will be made to conceal the identity of the patient however it cannot be guaranteed.

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