

A Retrospective Review of Neonatal Bilious Vomiting in a Non-Tertiary Neonatal Unit

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BACKGROUND

- Bilious vomiting (BV) in neonates can be a sign of surgical emergencies such as malrotation with volvulus requiring timely intervention.
- Consequently, infants with BV are often transferred from our non-tertiary unit to other sites for further investigation and surgical review.
- However, BV can also be a sign of various non-surgical pathologies that do not necessarily warrant transfer to other sites.

AIM

- The aim of this review was to identify the range of aetiologies and review diagnostic approaches in order to inform future clinical work-up of infants with bilious vomiting.

METHODS

- A retrospective analysis of infants admitted to TNH with BV between 2015 and 2024.
- Data points collected included maternal, antenatal and birth history, neonatal comorbidities, onset and assessment of bilious vomiting.
- Predictors of surgery were assessed using Fisher’s exact and Chi-squared test; weekend and after-hours effects were evaluated using the Mann-Whitney U test.

RESULTS & DISCUSSION

- 118 infants satisfied the inclusion criteria. The median gestational age was 38.71 weeks and median birth weight was 3050g (**Table 1**).
- Surgical review via transfer was sought for 58% (n=69) with surgery performed on 9% (n=11) (**Table 1**).
- Any abnormal imaging (p<0.001), including abdominal X-ray (p=0.005) or upper gastrointestinal (GI) contrast study (p<0.001) were predictive of surgery, though upper GI contrast study is the superior imaging modality (diagnostic odds ratio: abdominal X-ray = 6.55, Upper GI contrast = 15.80) (**Table 2**).
- There was no weekend nor after-hours effect in timing between onset of BV to PIPER transfer nor surgery.
- The most common diagnosis for BV was presumed early onset sepsis (31%, n=37) and 3% (n=4) had intestinal malrotation (**Figure 1**).

Characteristics	Total (N=118)
Gestational age, wks, median [IQR]	38.71 [36.43, 40.14]
Birth weight, g, median [IQR]	3050 [2530, 3460]
Birth length, cm, median [IQR]	49 [46.5, 50]
Birth head circumference, cm, median [IQR]	34 [32, 35]
Gender	
Male, n (%)	60 (50.85)
Female, n (%)	57 (48.31)
Bilious vomiting onset, hours from birth, median [IQR]	27.38 [16.13, 66.67]
Bilious type	
Vomiting, n (%)	103 (87.29)
Aspirates, n (%)	15 (12.71)
PIPER transfers, n (%)	69 (58.47)

Table 1. Patient characteristics

Final Diagnoses among infants with bilious vomiting

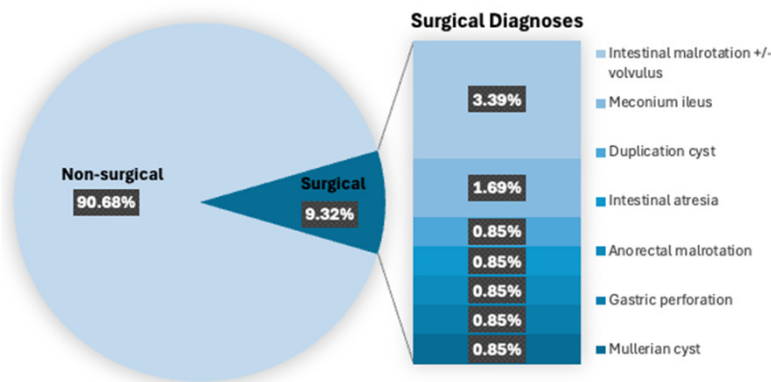


Figure 1. Final Diagnoses among infants with bilious vomiting

Impact of Clinical Characteristics on Surgical Decision-Making			
Variable	Odds ratio	95% CI	p-values
Prematurity	1.25	[0.31, 4.98]	0.72
Abnormal examination findings	1.92	[0.58, 6.32]	0.17
Abnormal abdominal X-ray findings	6.55	[1.67, 25.67]	0.005
Abnormal Upper GI contrast findings	19.33	[5.10, 73.30]	<0.001

Table 2. Impact of Clinical Characteristics on Surgical Decision-Making

CONCLUSION

- The rate of surgical pathology (9%) amongst infants with BV at NH was much lower than the predicted rate (20-50%) based on similar audits.
- However, BV frequently results in transfer of infants for further investigation and management.
- Upper GI contrast study has the potential to reduce unnecessary BV transfer, but further evaluation is needed.