SUCTION RECTAL BIOPSY IN HIRSCHSPRUNG'S DISEASE:

IS A SINGLE MACROSCOPICALLY ADEQUATE SAMPLE SUFFICIENT?

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BACKGROUND

- Suction rectal biopsy (SRB) is the preferred technique for histopathological confirmation of Hirschsprung's Disease (HD).
- At least two samples are routinely taken to ensure adequacy for interpretation, however the single use biopsy cartridges are expensive.

AIM

This study aims to determine if a single macroscopically adequate sample is sufficient for diagnosis of Hirschsprung's Disease.

METHODOLOGY

- Retrospective Study
- Inclusion Criteria

  Children ≤ 1 year who had SRB from January 2016 to July 2019 at our centre.
- Performed by trained clinicians using Rbi2 forceps.
- Fresh samples sent for standard stains, supplemented by
  - acetylcholinesterase
  - calretinin studies

  according to pathologist preference.

DEFINITIONS

Macroscopically Adequate Biopsy

Equal amounts of pinkish mucosa and white glistening submucosal tissue seen.

Inadequate Biopsy

Specimen taken within the episode unable to confirm or exclude HD.

DATA REVIEWED

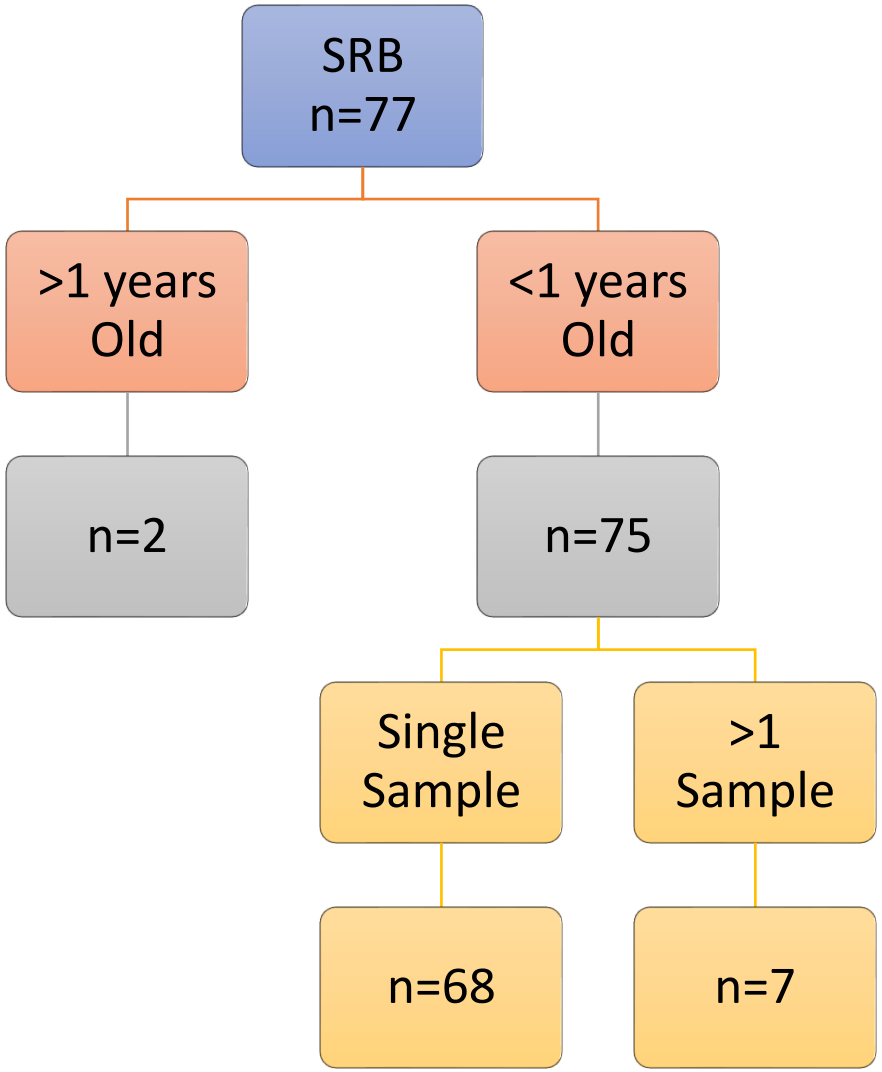
- Demographic data
- Clinical features
- Complications
- Procedure
- Procedure cost
- Histopathological results

STATISTICAL ANALYSIS

- Categorical data were analysed using Fisher's exact test
- Logistics regression was used to study independent variables

  Variables with $p>0.25$ were then subjected to multiple logistics regression
- Significance was taken at $p<0.05$

RESULTS



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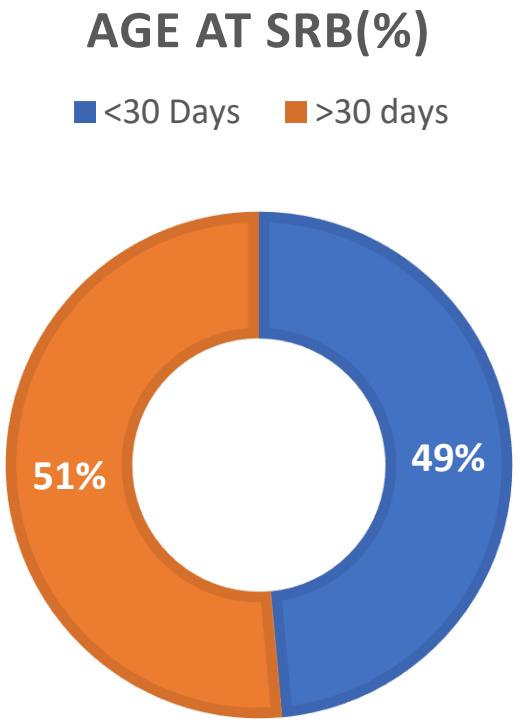
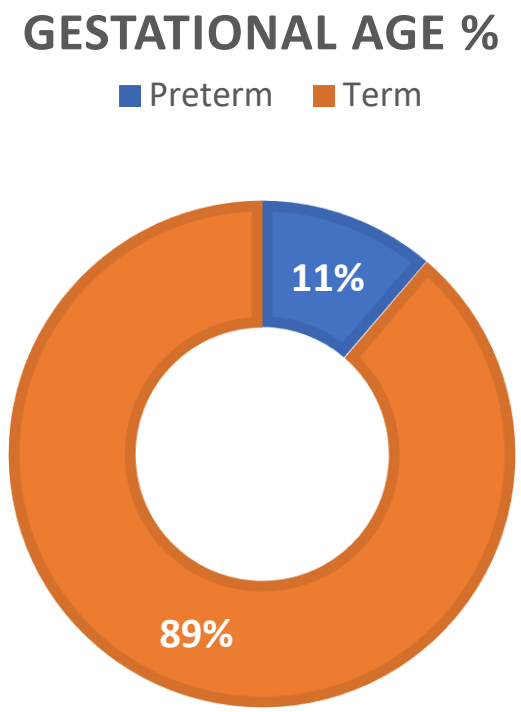
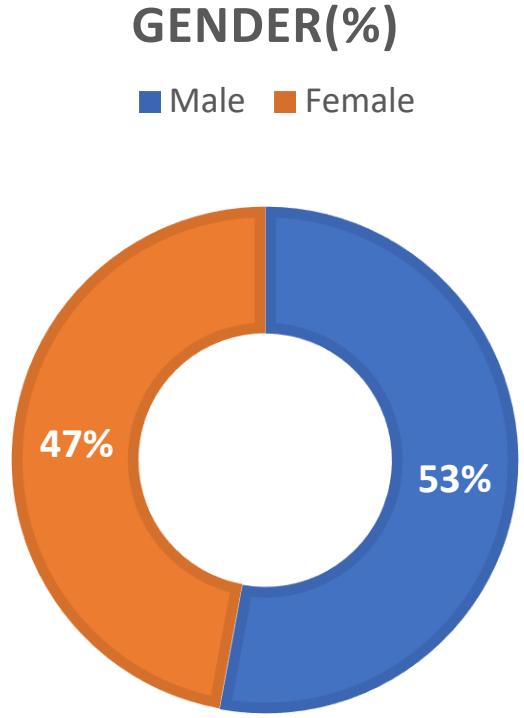
DEMOGRAPHIC DATA







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ANTHROPOMETRIC DATA

Variable	Mean (Std Deviation)
Birth Weight (kg)	2.9 (0.54)
Weight At Biopsy (kg)	3.5(1.38)

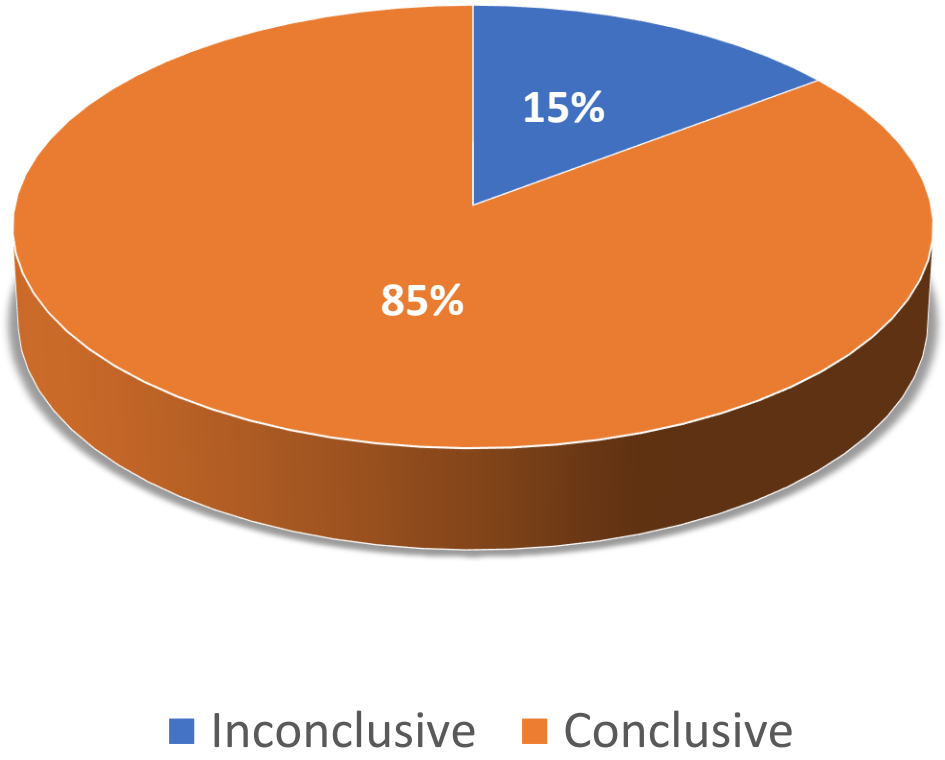
PROCEDURAL DATA

Number of attempts	Frequency
1	95.6%
2	4.4%

ADJUNCT TESTS

Tests	Frequency
Acetylcholinesterase	
Performed	95.5%
Not Performed	4.4%
Calretinin Staining	
Performed	33.8%
Not Performed	66.2%

FINAL REPORT OF SUCTION RECTAL BIOPSY



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FACTORS ASSOCIATED WITH SAMPLE INADEQUACY

- Weak association with the age at suction rectal biopsy (P=0.153).
- No association between inadequacy and
    - gestational age
    - gender
    - birth weight
    - weight at biopsy.

Factors associated with the adequacy of SRB using Simple Logistics Regression

Variable	b	Crude OR (95% CI)	Wald statistic (df)	p value
Gestational Age				
Preterm	0	1		
Term	-0.21	0.81 (0.09,7.39)	0.04 (1)	0.851
Gender				
Girl	0	1		
Boy	0.61	1.85 (0.47,7.24)	0.77 (1)	0.379
Birth weight (kg)	-0.18	0.84 (0.24,2.97)	0.08 (1)	0.836
Age at Suction Rectal Biopsy				
0-30	0	1		
Above 30	1.06	2.87 (0.68,12.22)	2.04 (1)	0.153
Weight at SRB (kg)	-0.14	0.87 (0.49,1.54)	0.23 (1)	0.634

OR:ODDS RATIO

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COMPLICATIONS

There were no complications in this study

COST COMPARISON

Test/Equipment	Cost	
	1 Sample	**2 Samples**
Hematoxylin and Eosin Staining	RM10.06 (1.75 GBP)	RM16.90 (2.9 GBP)
Acetylcholinesterase Staining	RM5.07 (0.87 GBP)	RM10.14 (1.76 GBP)
Rbi2 Bullets	RM150.00 (26 GBP)	RM300.00 (52 GBP)
Total	RM165.13 (28.7 GBP)	RM327.04 (56.9 GBP)

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CONCLUSION

- A single macroscopically adequate sample is sufficient for diagnosis in >85% of cases, and
- This reduces cost in low resource environments.

THANK YOU

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