



A Fifteen-Year Retrospective Study Among Pediatric Patients Diagnosed with Dolichocolon in A Tertiary Hospital in Metro Manila, Philippines: A Preliminary Study

Laurice S. San Jose, Portia Menelia D. Monreal, Rebecca S. Abiog- Castro, Caroline Anne A. Castro-Ador



Abstract: *Dolichocolon is a disorder of the colon commonly recognized and reported among the elderly [1]. The actual incidence of dolichocolon is unknown. There have been minimal reports in the literature among the pediatric age group of this entity. The difficulty is that there are no specific clinical features associated with it. Contrast study of the colon, such as barium enema has been utilized successfully to confirm its diagnosis. This study was conducted to increase the awareness and understanding among paediatricians of the possibility of dolichocolon as a potential cause of long-standing and intractable constipation among Filipino paediatric patients.*

Keywords: Dolichocolon, Abdominal Pain, Constipation

Nomenclature:

SPSS: Statistical Package for the Social Sciences

I. INTRODUCTION

Dolichocolon has been previously regarded as a disorder of the colon, commonly recognized among the elderly. The actual incidence of dolichocolon is unknown. There are no pathognomonic signs or symptoms of this entity; thus, recognition of it in the pediatric age group remains in its infancy [1].

Non-specific signs and symptoms include chronic constipation, abdominal pain, and vomiting. Non-specific signs and symptoms such as chronic constipation and abdominal pain. The advancement of imaging modalities,

such as barium vomiting and abdominal distention are a few of the most associated signs and symptoms of the afflicted patients. enema, which showed an elongated segment of the colon or dilatation, introduced the term “dolichocolon”, shedding light on the existence of this congenital variant [2].

Recognition of dolichocolon in a general outpatient clinic setting by a general paediatrician is difficult. The nonspecific signs and symptoms may be mimicked by conditions such as appendicitis, volvulus, and malrotation. Along with a meticulous history and physical examination, the appropriate initial diagnostic imaging for recognising this variant remains debated.

To improve our understanding and recognition of dolichocolon among the Filipino pediatric population, this study aims to review the epidemiology, clinical features, and outcomes of various diagnostic modalities in patients diagnosed with dolichocolon at a general tertiary hospital in Manila, Philippines.

II. METHODOLOGY

This is a retrospective case series chart review with an analytical component that determined the association between Dolichocolon and patient demographics, family history of constipation, risk factors (dietary history), and initial presentation (chief complaint and physical examination) at the time of diagnosis. This will also review the different imaging modalities requested by the admitting physician and the radiologic findings of the barium enema performed at the University of Santo Tomas Hospital between January 2008 and December 2023.

Numerical data were presented as mean and standard deviation. The categorical data will be presented as frequency in the form of percentage. Results will be presented in various chart formats. Data analysis will be carried out using the Statistical Package for the Social Sciences (SPSS) for MS Windows, version 10. All categorical variables will be presented as frequencies and percentages, and all continuous variables as Mean $\pm$ Standard Deviation. Cross-tabulation of variables will be examined using the chi-square test, with $P < 0.04$ considered significant, and where appropriate, 90% confidence intervals for differences will be included.

III. RESULTS

It has been 15 years since the section of pediatric gastroenterology,



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hepatology, and nutrition was established at the University of Santo Tomas Hospital. Various cases of chronic constipation among children have been encountered. Some patients were encountered as inpatients, and others were referred in an outpatient setting. The study compiled the features of these patients to improve understanding of Filipino children with dolichocolon further. A total of 399 charts were reviewed, in which dolichocolon was confirmed by barium enema.

IV. DEMOGRAPHICS

The most common age at diagnosis in this pediatric population was 2-5 years (48.1%), followed by 6-10 years (28.07%) and, lastly, 11-18 years (14.79%). Fifteen patients with dolichocolon had coincidental findings of short segment Hirschsprung's disease and were referred to pediatric surgeons for further evaluation and management. A female predominance of 54.65% was observed; among the 16 non-Filipino patients, 10 were half-Japanese, 3 were half-American, and 3 were pure Indian. The majority of patients brought for consult were first-born. Family history of constipation was also evaluated; the majority (87%) of patients did not report any family history of constipation. See [Table I](#).

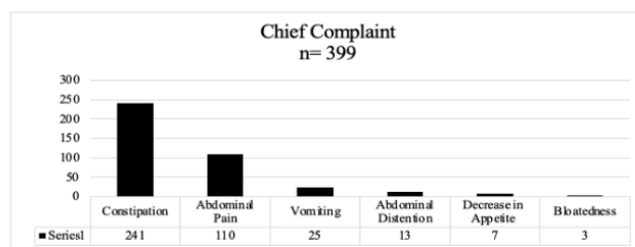
Table I: Demographics

Clinical profile	Frequency	Percentage
Age at Diagnosis		
0 to 6 months	15	3.76%
6 months to 1 year	21	5.26%
2 to 5 years	192	48.12%
6 to 10 years	112	28.07%
11 to 18 years	59	14.79%
Sex		
Male	181	45.36%
Female	218	54.65%
Nationality		
Filipino	383	95.99%
Non-Filipino	16	4.01%
Family child succession		
1st born	240	60.15%
2nd born	82	20.55%
3rd born and above	35	8.77%
Not mentioned	42	10.53%
Family history of constipation		
Present	25	6.27%
Not present	25	6.27%
Not mentioned	349	87.47%

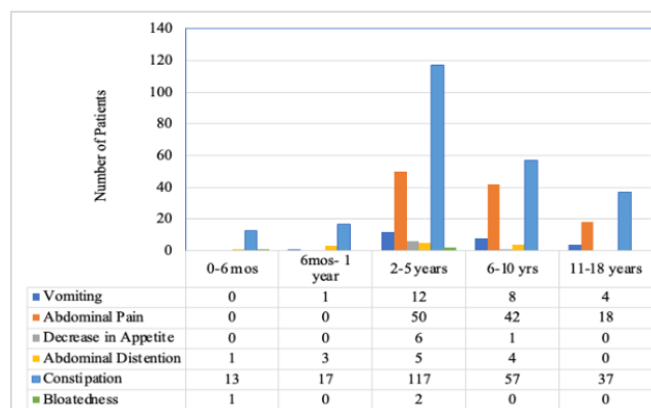
V. HISTORY AND PHYSICAL EXAMINATION

Constipation (60.40%) was the most common chief complaint across all age groups. This was followed by abdominal pain (27.54%), vomiting (6.27%), Abdominal distention (3.26%), decreased appetite (1.75%), and, lastly, bloating (0.75%) ([Figure 1](#)). Constipation was most prominent in the 2-5 age group ([Figure 2](#)). Most symptoms

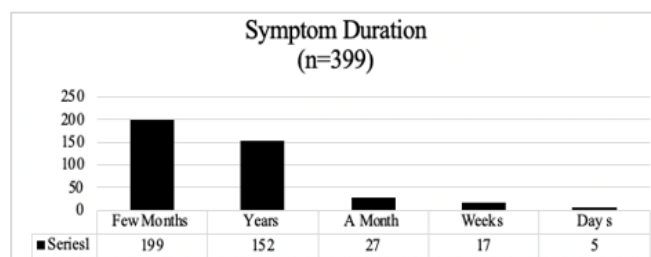
were experienced intermittently for more than a month but less than a year (49.87%) before the specialist consultation at our institution. 38% of patients had been intermittently experiencing symptoms for more than a year ([Figure 3](#)).



[Fig.1: Chief Complaint at Diagnosis]

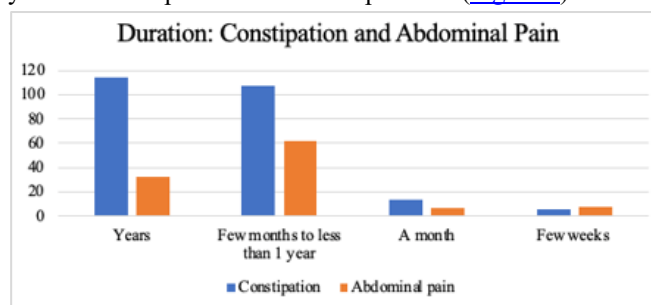


[Fig.2: Chief Complaint Among Age Groups]



[Fig.3: Symptom Duration Prior to Specialist Consultation]

Among the two most common symptoms (constipation and abdominal pain), constipation may persist for a few weeks to years before a person consults a specialist ([Figure 4](#)).

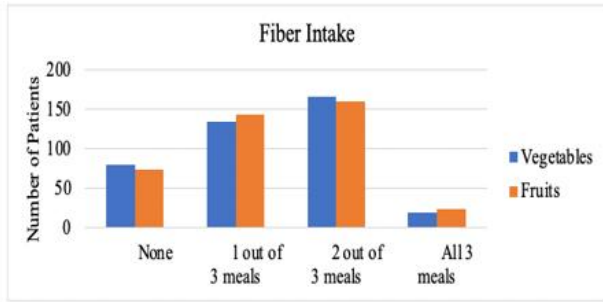


[Fig.4: Duration of Symptom: Constipation and Abdominal Pain]

Fibre intake from vegetables and fruits was also observed in two of the three main meals per day ([Figure 5](#)). 62.66% consumed meat with some vegetables, and 28.32% consumed mostly milk products, with little to no

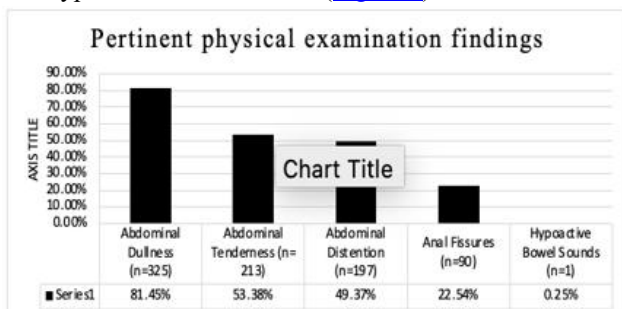


meat or vegetables.



[Fig.5: Fibre Intake Among Patients with Dolichocolon]

Pertinent physical examination findings common among these patients were abdominal dullness in 81.45% of the population, followed by abdominal pain at 53%, abdominal distention at 49.7%, 22.56% had anal fissures, and one patient had hypoactive bowel sounds (Figure 6).



[Fig.6: Pertinent Physical Examination Findings]

A. Readmissions

No charts with similar patient numbers were identified during the study.

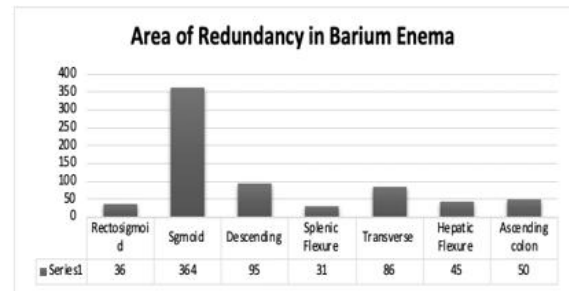
Laboratory and Imaging Diagnostics

Only two patients had leukocytosis and were admitted for disimpaction before barium enema. 72.93% did not have a Complete Blood Count done. Among patients with serum electrolyte measurements, both inpatients and outpatients, 25.31% had normal sodium levels; two patients were hypokalemic and had their potassium levels corrected during admission. In patients with fecalysis, all results were normal. Two patients had concurrent Urinary tract infection, treated during admission and as outpatients with appropriate antibiotics.

Before the barium enema, all patients had an abdominal radiograph documenting faecal stasis or retention. Ten patients had abdominal ultrasound done, signed out as normal, due to the persistence of symptoms before barium enema, and one patient underwent a CT scan of the whole abdomen, which was read out as normal in a patient with a 4-year history of intermittent abdominal pain.

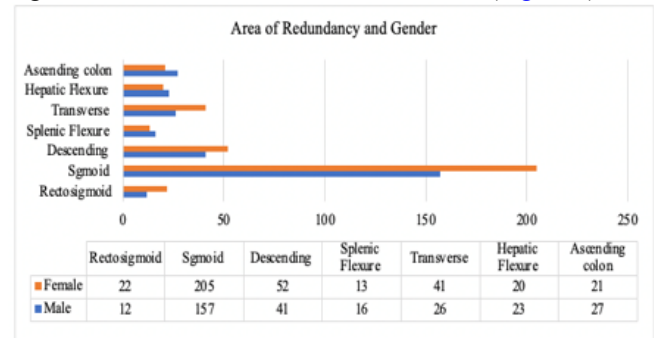
Barium Enema

All patients underwent a barium enema, and redundancy of the sigmoid colon was present in 91.22% of the studied population. This was followed by the descending colon at 23.8%, transverse colon at 21.55%, ascending colon at 12.53%, hepatic flexure at 11.28%, rectosigmoid at 9 % and splenic flexure at 31% (Figure 7).



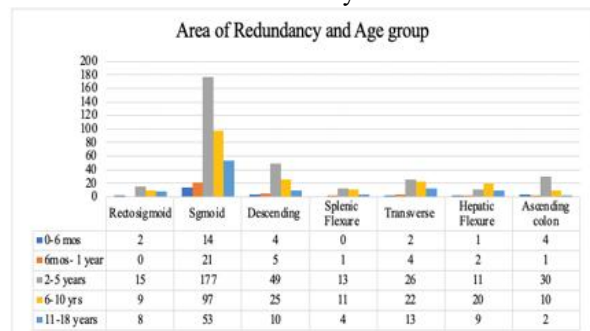
[Fig.7: Areas of Redundancy in Barium Enema]

The sigmoid colon was mostly involved in both sexes, with higher involvement in females than in males (Figure 8).



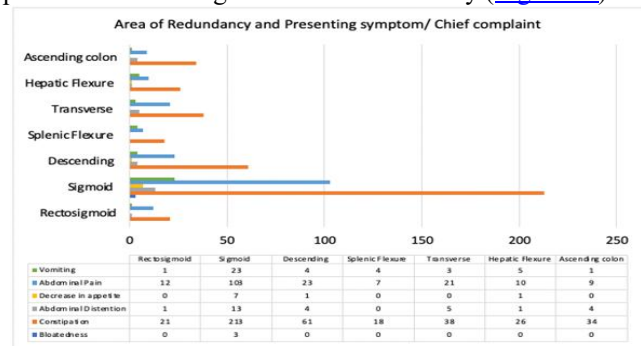
[Fig.8: Area of Redundancy and Gender]

Sigmoid redundancy was present across all age groups; most pronounced in the 2- to 5-year age group (Figure 9). Define abbreviations and acronyms first.



[Fig.9: Area of Redundancy and Age Group]

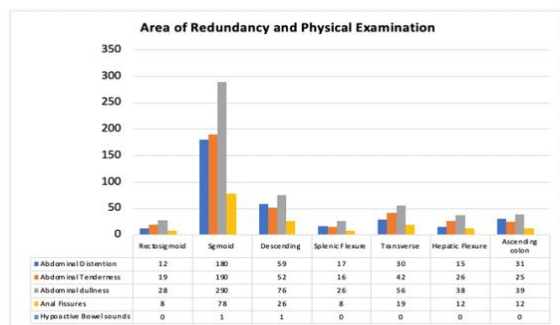
Constipation was experienced regardless of the presence of a redundant colonic segment. Constipation and abdominal pain were seen in sigmoid colon redundancy (Figure 10).



[Fig.10: Area of Redundancy and Presenting Symptom/Chief Complaint]

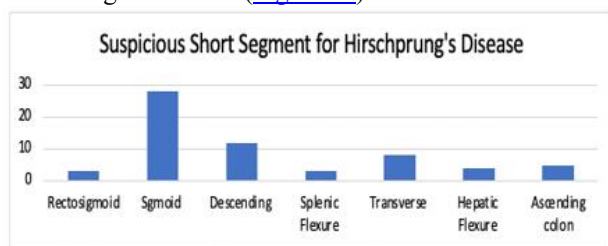
Abdominal dullness was the significant physical finding in all redundant segments (Figure 11).





[Fig.11: Area of Redundancy and Physical Examination]

Barium enema showed short-segment luminal narrowing in the rectum, suggestive of Hirschsprung's disease, and a redundant sigmoid colon (Figure 12).



[Fig.12: Barium Enema Findings for Suspicious Short Segment for Hirschsprung's Disease]

Statistical Analysis

Crosstabulation of colonic segment redundancies with clinical variables was performed to assess significant associations using the Chi-square test.

In this study, an association was seen between the female population and sigmoid redundancies (56.6%). It was also noted among patients whose diet consisted mostly of milk and milk formula products (29.8%). With descending colon redundancies, an association was noted in firstborn children in the family (73.9%) and abdominal distention (63%).

In the cross-table analysis, hepatic flexure redundancies were not observed in the 2–5-year age group (50.8%); however, they were common in the 6–10-year age group (46.5%). Ascending colon redundancies were observed in the 2–5-year age group (62.5%) but not in the 11–18-year age group. An association with abdominal distention, at 64.6% in this type of redundancy, was also noted.

Normal abdominal radiographic findings were observed in patients with splenic flexure, transverse, hepatic, and ascending redundancies; however, the sample size is insufficient to establish an association.

VI. DISCUSSION

Dolichocolon is an inborn anatomic variant of the colon. It is now used to describe redundancies that may occur anywhere in the colon [1]. Initially, the term was used to describe a long, redundant sigmoid colon [5], but over the years, redundancies have been observed throughout the colon. Most studies on dolichocolon were conducted in adult populations. This was diagnosed in the setting of intractable constipation [3] or recurrent severe abdominal pain, and may be found incidentally during exploratory laparotomy for another surgical condition [1].

Only case reports have been published regarding dolichocolon in the pediatric age group [6]. The exact

prevalence remains unknown. Although the prevalence of dolichocolon is difficult to estimate, it may be present in 1.9% to 28.5% of adults [1]. The most common presenting symptoms in adults are decreased bowel movement frequency, difficulty defecating, and hard stools, which are almost always referring to symptoms of colonic dysmotility or defecatory dysfunction.

We believe that this study is the first in Asia to explore the association of the clinical features and areas of colonic redundancy in the pediatric population.

In our study, we found that multiple areas of redundancy can be present in a single child. Descending colon redundancy was found primarily among firstborn children in this population; however, no studies support this claim.

Hepatic flexure and ascending colon redundancies were associated with the 6-10-year and 2-5-year age groups, respectively. However, there are currently no studies to substantiate this association. Sigmoid colon redundancies were most common in females (56.6%). In our study, the presence of sigmoid redundancy in this area is similar to that reported in a pediatric case series, in which sigmoid redundancy was more common among neonatal females with dolichocolon. Sigmoid colon redundancy was commonly found in the 2-5 age group, similar to the study by Malczyk et al. in 2014, in which children with redundant sigmoid colon had a significantly earlier age of symptom onset, ranging from 12 months to 7 years, and presented with constipation.

Abdominal distention was seen in descending and ascending redundancies. Abdominal distention is a consistent finding in patients with dolichocolon. 1. In the case series by Elouardighi [7], all seven patients in the said case series presented with abdominal distention and constipation. Our study is the first to document abdominal distention as a pertinent physical examination finding in the presence of descending or ascending colon redundancy [4,2]. Dolichocolon cannot be diagnosed with plain radiographs. In patients with chronic constipation not responsive to laxatives, even with normal plain abdominal radiographs, barium enema should be done. In our study, patients with dolichocolon have some form of fibre intake in 2 of the 3 main meals per day; however, this was not quantified. To date, no published studies have examined the relationship between dietary habits and areas of colonic redundancy.

In our study, coincidental findings of suspicious short segments coexisted with redundant colonic segments, but further research is required to confirm the association.

VII. CONCLUSION AND LIMITATIONS

In conclusion, this research paper has presented the clinical profile of patients with radiologically diagnosed dolichocolon using a barium enema. Our study showed concurrence with the three clinical criteria (constipation, abdominal pain & abdominal distention) seen among adult patients with dolichocolon [1,5]. Clinicians are recommended to institute appropriate management of patients with longstanding chronic constipation secondary to dolichocolon.

The limitations of the study are as follows: The study is retrospective; therefore, the accuracy of the data may be compromised (e.g., the





amount of fibre intake (vegetables and fruits) and the amount and type of formula milk intake). This study did not consider the effects of multiple colonic redundancies and their locations on the clinical features of the studied population. This study did not account for the regimen adopted before the diagnosis of dolichocolon.

RECOMMENDATIONS

The following are our recommendations:

- A prospective multi-centre study is recommended to establish the association of the clinical features and areas of redundant colonic segments.
- Diagnostic criteria for pediatric dolichocolon must be established, since not all patients fulfil the clinical criteria and diagnostic findings.
- Suggest follow-up among patients with coincidental findings of suspicious short-segment Hirschsprung's disease and dolichocolon.

DECLARATION STATEMENT

Some of the cited references are older and are noted explicitly as [6]. However, these works remain significant for the current study, as they are pioneering in their fields.

After aggregating input from all authors, I must verify the accuracy of the following information as the article's author.

- Conflicts of Interest/ Competing Interests:** Based on my understanding, this article has no conflicts of interest.
- Financial Assistance:** This article has not been sponsored or funded by any organization or agency.
- Ethical Approval and Consent to Participate:** The data provided in this article are exempt from the requirement for ethical approval or participant consent.
- Data Access Statement and Material Availability:** The adequate resources of this article are publicly accessible.
- Author's Contributions:** The authorship of this article is contributed equally by all participating individuals.

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AUTHOR'S PROFILE



Laurice S. San Jose MD, DPPS, Fellow-in-Training, University of Santo Tomas Hospital, Manila, Philippines. She is an early-career pediatric gastroenterologist with a growing passion for advancing the field, particularly in pediatric endoscopy. Inspired by the importance of preventive, comprehensive digestive health, she pursued subspecialty training in pediatric gastroenterology to educate children and their families that maintaining good gut health is a lifelong investment. She is committed to continually expanding her knowledge and skills while providing compassionate, evidence-based care to her patients.



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Dr. Caroline Anne a. Castro- Ador, m.d., Dpps, Dpspgghan is a paediatrician with a growing career in pediatric gastroenterology. As a young specialist in the field, she is dedicated to continually expanding her knowledge and clinical expertise to provide the highest standard of care for children with gastrointestinal and liver diseases. She has pursued further training in pediatric hepatology and endoscopy, strengthening her skills in diagnosing and managing a wide range of pediatric gastrointestinal conditions. Passionate about lifelong learning, she actively participates in conferences, workshops, and continuing medical education activities to remain current with advances in pediatric gastroenterology. Committed to both patient care and professional development, Dr Caroline looks forward to contributing to the field through clinical practice, research, and collaboration with colleagues.

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