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Research Article

Colic and Anal Fissure in Infancy: The Missing Significant Correlation

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Abstract

Background: Infant colic is not uncommon in the pediatrics. It is one of the most concerning dilemmas in infancy. It is distressing for the infant, the parents, and the clinician. Some studies suggest that as many as one in five persons develop a fissure during their lifetime. This may be an underestimate since some people may be too embarrassed to discuss it with their health care provider.

Colic and infants fissure are both significantly linked as explored in this research study based on clinical examination and history taking.

Objective: Our study was conducted to explore the clinical relevant correlation between infants colic and anal fissure based on history taking and clinical examination, and how infants with colic clinically improved after treating their anal fissure.

Design: The study was carried out on 58 patients who suffered with infantile colic, thirty- six (62%) out of them were girls, and 14 of them were boys (24%), aged from three weeks to 6 months of age; from in and outpatient clinic at Zakho/Duhok General Hospital in Kurdistan Region-Iraq. Patients were clinically diagnosed and followed up for 6 months. They were represented and adjusted by full history taking and clinical examination. Among those fifty- eight patients, all of them had related anal fissure.

Results: There is a significant clinical correlation between anal fissure and infant colic in all cases involved in this research study. Among forty-three patients, ninety three percent of them clinically suffered from classical evening colic. Treatment was given only for the associated anal fissure. Hence, parents were given advice to increase water intake for their infants as a stool softener and xyloproct ointments to treat their infants with related anal fissure. The symptoms did not disappear from all the infants by three months of age. However, twenty six percent of the involved infants, continued to have colic symptoms after four months of age.

In this research study, 43 infants (74%) with colic have very good response and clinical improvement, (39.6%) of the involved infants showed cessation in the duration of their colic, 22.4% had a lesser intensity of pain, and (12%) had lesser frequent colics based on clinical examination and history taking from their parents. This is achieved after exclusive treatment of their underlying anal fissures.

Moreover, both sexes had an equal response to therapy. Therefore, treatment of the infant with anal fissure is quite helpful to alleviate duration, frequency, and intensity of infants with colic during the first six months of life. However, more of these were bottle and breast fed. Social class and maternal education were not related to the incidence of colic.

Conclusion: Infants with colic and anal fissure showed progressive response and improvement in the duration, frequency, and intensity of their colic symptoms after treating their correlated anal fissures throughout the first six months of age. However, for each infant with colic, anal fissure must be clinically considered as treating the latter, the sign is helpful to alleviate colic symptoms during

the first six months of life. The greatest improvement in infant colic was significantly observed in about 43 patients (74%) after being managed clinically for their underlying anal fissures.

Keywords: *Infant Colic; Anal Fissure; Significant Links; Clinical Improvement; In and Outpatient Clinic*

Introduction

Infants colic is defined as crying for unclear reason (e.g., hunger, soiled diaper, air swallowing, gastroesophagial reflux, and food intolerance) that lasts for ≥ 3 hours/day and occurs on ≥ 3 days per week in an otherwise healthy infant < 3 months of age. Stricter definitions include criteria for minimum duration (eg, three weeks) or associated clinical features [1].

Colic is extremely common and occurs in up to 40 percent of all infants. It usually starts between the 3rd and 6th week after birth and ends when a baby is three to four months of age. Colic occurs with equal frequency in male and female, breast fed and bottle fed baby, full term and preterm babies and first and second child {4} Colic in infancy also known as "cry-fuss behavior", or "excessive crying," or "unsettled infant behavior," and period of PURPLE crying [1,2].

The Period of PURPLE Crying begins at about 2 weeks of age and continues until about 3 - 4 months of age. There are other common characteristics of this phase, or period, which are better described by the acronym PURPLE. All babies go through this period. It is during this time that some babies can cry a lot and some far less, but they all go through it [1,2].

In addition. The acronym PURPLE is used to describe specific characteristics of an infant's crying during this phase and let parents and caregivers know that what they are experiencing is indeed normal and, although frustrating, is simply a phase in their child's development that will pass. The word Period is important because it tells parents that it is only temporary and will come to an end [1,2].

Wessels rule of threes is often considered to diagnose Infants colic and this includes crying for more than three hours per day, at least three days per weeks, and for more than three weeks. Less than five percent of infants evaluated for excessive crying have an organic etiology. Cumulative incidence rates of colic differ from 5% to 19% in various studies with both sexes are affected equally [3].

Serious conditions must be considered clinically when evaluating infants with colic. History taking should include and describe duration, frequency, intensity and modifiability of the colic with associated symptoms as leg flexion, facial grimacing, vomiting and back arching must be identified. For instance: Cows milk protein intolerance, anomalous left coronary artery, and breast-fed mother taking fluoxetine hydrochloride might cause a persistent crying in infants [3].

Also, possible sources of pain in infancy must be excluded such as: skin lesions, hair tourniquets, corneal abrasions, skeletal infections or signs of child abuse such as fractures (Table 1). Hence, the diagnosis of infant colic is established only when there are no underlying organic causes [3].

On the other hand, anal fissure in infancy is defined as laceration of the mucocutaneous junction in the anal canal. It is mainly seen in infants under one year of age with unknown etiology. However, anal fissure might occur as a consequence of passage of hard stool. Clinically, the infant often has history of constipation and painful defecation or bowel motion secondary to hard stool formation with bright red blood on the surface of the stool is usually elicited [3,6].

Furthermore, anal fissure is a tear in the lining of the anus, the opening where feces are excreted. The tear typically extends into a circular ring of muscle called the internal anal sphincter. The fissure is described as acute if it has been present for less than six weeks, or chronic if present greater than six weeks [7].

Once a fissure develops, the internal anal sphincter typically goes into spasm, causing further separation of the tear, constricting blood flow to the area, impairing healing and causing pain [7].

Skin lesions
Hair tourniquets
Corneal abrasions
Skeletal infections
Child abuse such as fractures
Urinary tract infection
Otitis media
Mouth ulceration
Insect bite
Perinatal brain injury

Table 1: *Identifies a list of possible sources of pain in infancy.*

The diagnosis of both infants colic and anal fissure is purely based on clinical examination and no investigation is required to confirm and diagnose both conditions. However, findings in rectal examination in infants with anal fissure might include rectal spasm and ampulla occupied with hard stool [3].

Moreover, conservative intervention is required for the management of acute anal fissure in infancy [5]. This is done by modifying the infants diet, behaviour, and increasing water intake as a stool softener or using an oral polyethylene glycolate as Glycolax or MiraLAX. Surgical intervention, based on scientific bases, in infants with anal fissure is not indicated. In older children, chronic anal fissure is associated with constipation, Crohn's disease and chronic diarrhea [3].

However, in chronic anal fissure, the treatment approach is the same as in acute cases with stool softener with the addition of sitz baths. Also, 0.2% topical glyceryl trinitrate decreases anal spasm and heal fissures, but might be associated with headache. Hence, calcium channel blocker like 2% diltiazem ointment or nifedipine cream are more effective than glyceryl trinitrate and cause less headache [3,6].

Methods

Consent was obtained from parents when this data was collected and entered into the dataset. This is a cross-sectional hospital and private clinic based study, carried at Zakho General Hospital-Kurdistan-Iraq in and outpatients in pediatric units for the period from July 2016-January 2017.

A total of 58 infants with colic (36 girls, 22 boys) were conducted and collected. Data were collected from their parents about age, sex, main clinical presentation, duration, frequency and intensity of colic. They all had a complete clinical examination. Data were analyzed using percentage. Patients were treated and followed up for their related anal fissure from zero to six months of age. They were represented and adjusted by full history taking and clinical examination.

Results

Significantly, as shown in Table 2 in this study, all involved infants with colic had associated anal fissure including painful defecation and constipation.

No. of infants with Colic	Associated anal fissure
58	58

Table 2: *Identifies significant correlation between infants colic and anal fissure in this study.*

All infants with colic have been followed up clinically by history taking and physical examination. Great response (74%), 43 infants with colic after treating their underlying anal fissure was clinically identified as presented in Table 3. An approach and Treatment of the

examined infants with anal fissure was achieved by application of xyloproct ointment three times daily with Glycerin suppository for those infants with constipation, and adding water as stool softener to alleviate their colic symptoms.

No. of infants with Colic and fissure	% of clinical improvement
58 infants	74% (43 infants)

Table 3: *Presents clinical improvement of intervened infants after treating their underlying anal fissure.*

Among intervening infants with colic, no one had organic reason, (63.7%) thirty-seven infants had facial grimacing and leg flexion and was the commonest clinical signs among them, also, 16 cases (27.5%) had fascial grimacing, whereas only five infants (8.6%) had back arching among the participating infants (Table 4).

No. of infants with Colic	Associated clinical signs	Percentage %
58 infants	Facial grimacing and Leg flexion	63.7%
	Facial grimacing and Back arching	27.5%
	Facial grimacing, Leg flexion and Back arching	8.6%

Table 4: *Shows common clinical signs and percentage of infant colic in this study.*

Hence, very importantly, as revealed in this research study, any infant with colic symptoms must be examined and treated for his or her underlying anal fissure as this has positive clinical outcome in the decrease of their colic symptom. This is adjusted and based on history taking and clinical examination of the participants.

Discussion

The findings in this research study revealed that treatment of infants for their anal fissure helped to relieve their colic to a varying degree in almost 74% of the included infants. Colic in infancy occur in more than forty percent during the first six months of life and all infants had the phase of normal crying [1,2]. Significantly, no medication for infant colic was given to the patients involved, and treatment was just restricted for their related anal fissure. Among all fifty-eight infants with colic, all had clinical colic and anal fissure, they were treated with xyloproct ointment 20 gram 5% for their related anal fissure. Also, parents were advised to give water for their infants as tool softener to alleviate constipation linked with anal fissure [4].

The presented study revealed that infants colic affect both sexes equally [3]. All infants were originally from Iraq and of Kurdish ethnicity, and the average age was three weeks to six months. Typical infants colic was identified clinically in the examined infants (93%) including crying for more than three hours per day, at least three days per weeks, and for more than three weeks with no organic etiology (classical evening colic) [3].

Among intervented infants with colic, facial grimacing and leg flexion were the commonest clinical signs among them 37 infants (63.7%), 16 cases (27.5%) had facial grimacing and 5 infants (8.6%) had back arching (Table 4). Also, variation in frequency, duration and intensity in the examined infants was clinically considered [4].

However, certain factors such as nutrition or feeding, maternal education and social class were not considered in this research study.

Moreover, acute anal fissure might occur as a consequence of passage of hard stool. Clinically, the infant often has history of constipation and painful defecation or bowel motion secondary to hard stool formation with bright red blood on the surface of the stool is usually elicited [3,6]. Other risk factors that might cause anal fissure include: foreign body insertion or anal intercourse or fissure might occur in patients who have other medical conditions such as Crohn disease and ulcerative colitis [7].

On the other hand, in cases with chronic anal fissure, the treatment is the same as in acute cases with stool softener with the addition of sitz baths. However, 0.2% topical glyceryl trinitrate decreases anal spasm and heal fissures, but might be associated with headache.

Hence, calcium channel blocker like 2% diltiazem ointment or nifedipine cream are more effective than glyceryl trinitrate and cause less headache [3,6].

In addition, no investigations are essential to confirm the diagnosis of infants colic and anal fissure. The diagnosis of both the conditions are based on history taking and physical examination. Therefore, suspected cases of infants colic must have an early clinical evaluation for their concomitant anal fissure as this is significantly helpful to alleviate colic symptoms in infancy (Table 3).

Conclusion

In summary, any infant presents with colic symptoms should be necessarily examined for their associated anal fissure. This research study revealed an important clinical correlation between anal fissure and colic in infancy. Further research are required and suggested for future studies to include more number of infants in such study, therefore more results would be obtained.

Limitations

There are certain limitations of this study that should be acknowledged. A small number of infants participated in this research study, therefore it is not easy to generalize to a larger or broader population. More authors if included in this research study, we might get better results and further understandings of the correlation between infant colic and anal fissure. Also, a pediatric gastroenterologist might share in such study and better conception of the findings would have been achieved as comparison to results obtained by an individual research author.

Despite of these limitations, the findings generated will have significant reference value for future studies.

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