

HYDROSTATIC REDUCTION OF ILEOCOLIC INTUSSUSCEPTION BY USING GASTROGRAFIN ENEMA IN PAEDIATRIC PATIENTS

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ABSTRACT

Objective: To assess the effectiveness of fluoroscopic guided gastrografin solution enema in reducing idiopathic ileocolic intussusception.

Materials and Methods: From January 2014 to June 2015, DHQ Hospital Timergara conducted this prospective observational research. Based on the clinical history and ultrasound confirmation, the diagnosis was made. All patients diagnosed and brought in within 48 hours were included in the trial, while those who did not show up before 48 hours were not. After passing a Foley's catheter via the anus, the balloon was inflated. Gently injecting a diluted gastrografin solution with normal saline under controlled pressure was done. Throughout the operation, many radiographs were collected. When the contrast reached the small intestine, the process was stopped. Under fluoroscopy, we performed hydrostatic reduction in every instance of gastrografin enema. Using the gastrografin enema, the intussusception was effectively decreased in 10 out of 14 instances. The same oncologist who previously performed the reduction used ultrasonography to check its success.

Results: Our patients ranged in age from 4 to 12 years old. There were nine (75% of the total) men and five (25%) women. Twelve out of fourteen patients (85%) who had gastrografin enema guided by fluoroscopy saw a complete decrease. Eleven patients only needed one sitting for a full reduction, and just one needed to have the surgery done twice. Four individuals had the surgery stopped due to failure. In 1/12 cases, recurrence after effective reduction was seen. There were no issues either during or after the surgery.

Conclusion: Hydrostatic reduction of intussusception with gastrografin enema under ultrasound or fluoroscopic guidance is a very simple and safe nonoperative method for reducing intussusception in children.

Key Words: Intussusception, Hydrostatic reduction, fluoroscopic guidance, gastrografin enema..

INTRODUCTION

An intussusception occurs when a section of the proximal intestine known as the intussusceptum invades the distal bowel's lumen, or intussuscipiens. A major abdominal emergency throughout infancy and youth up to three years of age is idiopathic intussusception. Over time, the identification and management of intussusception have changed, using hydrostatic

reduction and various treatments administered under fluoroscopic or ultrasonography supervision. Surgery is a safe and effective conventional procedure. Still, it has drawbacks such as invasiveness, manipulation of the intestine during attempted manual reduction resulting in serosa and mucosa tears, and issues with anaesthesia. Since nonoperative management is less intrusive, less complicated, and more affordable than surgical therapy, it is given priority when it comes to treatment options. Ninety per cent of intussusceptions are ileocolic, with the remaining ten per cent being either colocolic, ileoileal, or ileoileocolic kinds¹. Small intestinal blockages in infants are caused by idiopathic intussusceptions, which peak in occurrence between the ages of 5 and 9 months^{2,3}. Given that the illness frequently presents with symptoms such as vomiting,

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red-currant jelly stools, intermittent stomach discomfort, and palpable lumps in the right upper quadrant of the abdomen and that the patient must be less than two years old to be diagnosed, intussusception is often seen as a treatable condition.

Diagnosis of intussusception is based on plain abdominal radiographs and ultrasound. The commonest finding in plain X-rays was air-fluid levels in all cases. Many researchers have since used ultrasound to diagnose this condition with a high specificity and sensitivity of nearly 100%². Different solutions were used, like normal saline, Hartman's solution, astrograph, and barium, and all were successful. We used astrographic for 2 reasons¹. It is a hyperosmolar agent that doesn't retain inside the lumen and acts as a laxative without causing hyperperistalsis.⁴

MATERIALS AND METHODS

Over 14 months, from January 2014 to June 2015, the paediatric surgical unit of DHQ Hospital Timergara conducted this prospective observational research. Based on the clinical history, an ultrasound and an abdominal radiograph were used to confirm the diagnosis. All patients for hydrostatic reduction who were diagnosed and came in within 48 hours of each other were included in our analysis, while those who arrived after that time were not. Under anaesthesia, a Foley catheter was placed via the anus, and a balloon was inflated. Gently injecting a diluted gastrografin with normal saline under controlled pressure was done. Throughout the operation, many radiographs were collected. When the contrast reached the small intestine, the process was stopped. Under fluoroscopy, we performed hydrostatic reduction in every instance of gastrografin enema. Using a gastrografin enema, the intussusception was effectively decreased in 10 out of 14 instances. The same sonographer who previously performed the reduction used ultrasonography to check its effectiveness.

RESULTS

Our patients ranged in age from 4 to 12 years old. There were nine (75% of the total) men and five (25%) women. Twelve out of fourteen patients (85%) who had gastrografin enema guided by fluoroscopy saw a complete decrease. For a full reduction, 11 patients only needed one set, and just one patient needed repeated treatment. Two patients had their procedures stopped due to procedural failure. The operation took



Fig 1



Fig 2



Fig 3

between ten and twenty minutes. In 1/12 cases, recurrence after effective reduction was seen. There were no issues either during or after the surgery. (Figures 1, 2, and 3)

DISCUSSION

Intussusception is a common emergency in infants and children below 1 year of age⁵. It is commoner in males than females. In this study, the ratio was 1.8:1, comparable to other studies^{6,7}. The most frequent kind is ileocolic, and the transverse colon was the most often seen location of intussusception, as shown by a 1999 research by Sarin et al⁸. Comparatively speaking to other research, there were no cases of any other kind save ileocolic, such as colo-colic intussusceptions, ileoileal, or ileo-ileo-colic. The limited number of instances in our research that prevented us from obtaining different kinds throughout our investigation may be the cause⁸. Numerous researches have shown that ultrasonography can identify this illness with a high specificity and sensitivity of almost 100%, even though it is always operator-dependent⁸. The clinical history and the abdominal ultrasonography performed by the same sonographer supported our findings.

Operative treatment is an easy approach to treat intussusception and related problems. Still, it involves transferring the kid to the operating room, obtaining an anaesthetist, and dealing with the difficulties of anaesthesia. In addition, the patient requires a lengthier stay in the hospital after surgery, adding to the hospital's workload. Furthermore, the patient may have adhesions in the future. Regretfully, the likelihood of recurrence after surgery is no higher than that of nonoperative treatment. Compared to other surgical intervention needs, the fluoroscopic guided hydrostatic reduction is a straightforward operation that doesn't require an anaesthetist. This also reduces

the hazards associated with anaesthesia. Patients have comparatively shorter hospital stays and are linked to lower morbidity^{5,9}.

Notably, most intussusceptions will disappear within 10 minutes of the beginning of the operation, making it a comparatively quick process compared to surgery, which requires at least 45 minutes¹⁰. In our investigation, the process took ten to twenty minutes. This is a noteworthy positive discovery that favours the hydrostatic decrease in the early therapy of intussusception. In conclusion, our study's very high success rate of 85% is highly promising compared to prior research^{5,8,11}. It has been reported that hydrostatic reduction may not be successful in patients whose duration of symptoms was more than 48 hours^{12,13}. The overall reported success rate with a hydrostatic reduction in the literature ranged from 62% - 94%^{14,15}. It is encouraging to use hydrostatic reduction as the primary management option, failing which surgery can be used. We selected patients who presented within 48 hours of developing intussusceptions.

CONCLUSION

Hydrostatic reduction of intussusception with astrographic enema under ultrasound or fluoroscopic guidance is a very simple, safe and effective conservative method for reducing intussusception in carefully selected children. Even if a problematic lead point is present, a partial decrease of intussusception may be achieved by injecting an astrographic enema, allowing for appropriate surgical procedure planning. Overall, this therapeutic approach is economical and is easily applicable to patients in settings with limited resources.

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