OLGU SUNUMU CASE REPORT

The Diagnosis of Small Bowel Crohn's Disease in a Child with Double Balloon Enteroscopy

Çift Balon Enteroskopi Yapılmış Bir Çocukta İnce Barsak Crohn Hastalığın Tanısı

F. CAMPEOTTO, MD,[a]
D. LAMARQUE, MD,[b]
N. KALACH, MD,[a]
P. BARBET, MD,[c]
C. BOUVATTIER, MD,[d]
M. GAUDRIC, MD,[b]
L. MAUCLERT, MD,[e]
S. CHAUSSADE, MD,[b]
C. DUPONT, MD[a]

[a]Department of Neonatology and Nutrition,
[c]Department of Pathology,
[d]Emergency Unit,
Saint-Vincent-de-Paul Hospital,
[b]Department of Gastroenterology,
Cochin Hospital,
[e]Fujinon Europe, 43 avenue des trois Peupliers, FRANCE

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Yazışma Adresi/*Correspondence:*
Florance CAMPEOTTO, MD
Saint-Vincent-de-Paul Hospital,
Department of Neonatology and Nutrition, FRANCE
florence.campeotto@svp.aphp.fr

ABSTRACT We report a case in which double balloon entéroscopy (DBE) allowed diagnosing jejuno-ileitis during Crohn's disease in a 12-year-old child. DBE is a new method that allows complete visualization, biopsy specimens, and interventional treatment of the small bowel, with a high successful rate.

Key Words: Children, crohn, double balloon entéroscopy

ÖZET Bu olgu raporunda, 12 yaşındaki bir çocukta Crohn hastalığı sırasında gelişen jejuno-ileitisin tanısında yararlanılan çift balon enteros kopisi (DBE) anlatılmıştır. DBE, yüksek başarı oranı ile ince barsakların tamamen görülebilmesi, biyopsi örneklerinin alınabilmesi ve dirişim yapılabilmesi açısından elverişli yeni bir yöntemdir.

Anahtar Kelimeler: Çocuklar; Crohn; çift balon enteroskopi

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Only 25% of children with Crohn's disease (CD) present with the classic triad of abdominal pain, weight loss, diarrhoea.[1] The disease involves the terminal ileum in 50%-70% and the colon in more than half.[2] This underlines the importance of an appropriate diagnosis at an age where growth and nutrition are key issues. On the other hand, diffuse jejuno-ileitis is one of the most difficult localisation to investigate and its exact frequency in CD remains unknown, most authors believing that its prevalence has been underestimated and may actually exhibit a high rate among children and young adolescents. In addition, approximately one fourth of new CD diagnosis is made in individuals under the age of 20 years, in whom proximal Crohn's disease tends to be more common.[3]

Routine full endoscopic investigation includes upper gastrointestinal endoscopy and ileocolonoscopy,[4] meaning that the small bowel remains most of the time largely unexplored. The video capsule endoscopy (VCE) has proved safe and effective for children over 10 years of age, and is now the preferred imaging modality for evaluating gastrointestinal bleeding in the small intestine.[5] Double balloon enteroscopy (DBE) is also a new met-

hod, that allows complete visualization of the small bowel lumen: it allows not only visual diagnosis but also biopsy samples, as well as therapeutic endoscopic interventions when needed. We report a case in which iterative video-capsule endoscopy and double-balloon enteroscopy allowed diagnosing jejuno-ileitis during CD in a 12-year-old child.

CASE REPORT

A 12-year-old boy without personal or familial past specific medical history presented with a 3-month period of intermittent diarrhoea with pallor and asthenia. Recent bloody stools prompted admission in the paediatric department. Clinical examination showed a reduction in length and weight gain dating back one year.

Blood analysis showed microcytic anemia, iron deficiency and a minimal inflammatory syndrome. Esophagogastroduodenoscopy and colonoscopy were macroscopically normal, with numerous eosinophils in biopsy specimens. A complete imaging evaluation with technetium ^{99}Tc scintigraphy, tomodensitometry and magnetic nuclear resonance were normal. The child was admitted again for severe abdominal pain and second biological work -up evidenced a severe inflammatory syndrome, with high anti-*Saccharomyces cerevisiae* antibodies (ASCA). A VCE (Given Diagnostic Imaging System®, Yoqnem, Israel), showed aphthous and ulcerative lesions in the middle part of the ileum. A DBE was then performed, using a specific paediatric instrument (Fujinon® EN-450P5/20, outer diameter of the endoscope was 8.5 mm, operator conduct diameter 2.2 mm, length 2 m, CDD processor 410 000 pixels, rotation angle 120°, Inc., Saitama, Japan). This instrument allows the use of an extended range of therapeutic accessories with limited manoeuvrability for deep intubation of the small bowel. The child was in the semiprone position, then he underwent an endotracheal intubation followed by a general anaesthesia under inhalation. The procedure was performed by two experiment paediatric endoscopists with a mean time length of 90 mn. The DBE allows to investigate the entire ileum and revealing aphthous and ulcerative lesions, localised precisely at 50-80 cm from the ileo-caecal Bauhin valve (Figure 1). Numerous small intestinal biopsy specimens showed an important inflammatory infiltration with lymphocytes, polynuclear eosinophils, macrophages and a typical epithelioid granuloma diagnosing Crohn's disease. The child was treated with steroid (Budesonide) associated with azathioprine, resulting in a dramatic clinical improvement, with disappearance of diarrhoea, abdominal pain and reduction of the inflammatory syndrome.

FIGURE 1: Double balloon enterosocopy: ileal ulcer in a boy 12 years old with Crohn's disease

DISCUSSION

This case report shows the importance of investigating the small bowel to evidence CD lesions not previously accessible to ileocolonoscopy, thus optimizing therapeutic decisions.

The investigation of inflammatory bowel disease has improved progressively with time, following the development of new technologies, usually first developed in adults then transferred to paediatric practice.[6] A more recent step was provided by the development of the video-capsule endoscopy, almost non-invasive, painless, providing for the first time images of the small intestine above the last ileal loop, and thus allowing to avoid small intestine radiological examination. The wireless capsule (Given Diagnostic Imaging System®, Yoqnem, Israel) was approved in August 2001 by the Food and Drug Administration (FDA) as an adjunctive

diagnostic tool in adults small bowel disease and in January 2004 for use in paediatric patients between 10 and 18 years of age. The potential applications of VCE among pediatric patients with undiagnosed gastrointestinal bleeding was described in two preliminary series.[7,8] When young children are unable to swallow the capsule, it may be placed in the stomach and duodenum through a variety of endoscopic techniques.[8] The youngest child reported up to now, 2.5 year-old, underscores the usefulness of the VCE in the treatment of acute obscure gastrointestinal bleeding in this age range.[9] In the present case, the mucosal lesion seen in the ileum using the VCE prompted a DBE in order both to get a better evaluation of the small bowel lesions extent and to perform small bowel biopsy specimens confirming CD.

DBE is a new method that allows complete visualization, biopsy specimens, and interventional treatment of the small bowel, with a high successful rate. Visualization and tissue sampling are possible in the entire small bowel by using the oral and anal approaches. The procedure, even though time consuming (73.5±25 mn), is safe, has high diagnostic yields and therapeutic capabilities.[10] The overall diagnostic accuracy amounts to 80%, diagnosis usually being angiodysplasia (37%), erosions and ulcerations of various origins (27%), and polyps and tumours, including malignancy (25%).[11]

The first series of DBE in children's small bowel disease was recently published in Chinese language by Xu et al,[12] who evaluated the safety, the small bowel area investigated and the clinical efficacy. Among 14 suspected cases of small bowel disease with negative routine examinations, 13 exhibited gastrointestinal bleeding and iron deficient anemia and 1 chronic diarrhoea. The DBE reached the jejunal-ileum transitional area, the middle or the lower portion of ileum and terminal ileum in respectively 2, 10 and 2 cases, with examination times of 40-50 min, 55-70 min and 78-89 min. Lesions were detected in 12 cases, the positive diagnostic rate thus being 85.7%, with no relevant technical problems or severe complications.

CONCLUSION

The association of VCE and DBE proved helpful in diagnosing small intestine CD in a child, thus suggesting further investigation of this technique in this medical setting.

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