Peutz-Jeghers Syndrome Complicated with Intussusception: Enteroscopic Polyps Resections through Laparotomy

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ABSTRACT

Peutz-Jeghers syndrome is an autosomal dominant inherited disorder characterized by intestinal hamartomatous polyps in association with mucocutaneous pigmentations. Here we present a case of a 30-year-old woman who was hospitalized and underwent diagnostic procedures because of crampy adbdominal pain. Physical examination on admission revealed pigmented spots around lips and on the oral mucosa. Multiple polyps were found in stomach, small and large intestine, with signs of initial ileo-ileal intussusception. After endoscopic removal of achievable polyps, we applied gastroscope through laparotomy and enterotomy and removed total number of 34 polyps from small bowell. The polyps were found to be mostly hamartomatous at histological examination. This procedure can provide removal of the most polyps, which are potentially premalignant, also with less complicationes than after multiple intestinal resectiones.

Key words: *Peutz-Jeghers syndrome, endoscopic polypectomy, intussusception*

Introduction

Peutz-Jeghers syndrome (PJS), also known as hereditary intestinal polyposis syndrome, is an autosomal dominant genetic disease characterized by the development of benign hamartomatous polyps in the gastrointestinal tract, mostly in the small bowel, and hyperpigmented macules on the lips and oral mucosa[1,2]. Characteristic pigmentations are present in 95% of the patients and are caused by pigment-laden macrophages in the dermis. They are typically flat, blue-gray to brown spots 1–5 mm in size. Peutz-Jeghers syndrome has a prevalence of approximately 1 in 25 000 to 300 000 births[3]. The median time to first presentation with polyps is about 11–13 years of age, and approximately 50% will have experienced symptoms by the age of 20 years[2–4]. Genetic testing is suitable for confirmation of PJS. Nowadays, the only identifiable mutations causing PJS affect the STK11 (serine/threonine-protein kinase 11 alias LKB1) gene, located on chromosome 19p13.3[4]. Although the exact mechanism of action of STK11 has not been outlined completely, the function of this protein product is likely to be important in growth inhibition. Genetic testing for STK11 mutations is available but they have variable sensitivity; in familial cases, 70%, in sporadic cases, from 30% to 67%[4,5]. Although the intestinal lesions are hamartomas, patients with PJS have a eight-fold increased risk of developing intestinal cancer compared to that of the general population[3,6]. These patients are referred for surgery to remove these lesions, even if they are asymptomatic. The hamartomatous polyposis syndromes are characterized by an overgrowth of cells native to the area in which they normally occur. It is important to note that there is an overgrowth of cells or tissues, at least initially, with no presumed neoplastic potential. Hamartomatous polyps are composed of the normal cellular elements of

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the gastrointestinal tract, but have a markedly distorted architecture[5]. Here we report a patient that was treated by combined endoscopic and surgical procedure.

Case Report

A 30-year-old woman was admitted after investigation of gastrointestinal tract that was performed in regional hospital due to abdominal pain, ten days ago. Physical examination on admission revealed pigmented spots around lips and on the oral mucosa. Patient explained that these spots were unique in their family and had been present since birth. Also anamnestic data showed history of previous surgical treatment due to small bowel intussusception, 10 years ago. Upper gastrointestinal endoscopy revealed large polyp at greater curvature of the stomach and colonoscopy showed one rectal hyperplastic polyp, and three polyps at the level of sygmoidal colon. Histological findings of a specimen of the gastric polyp were consistent with hyperplastic polyp. Colon specimens had similar histological findings and were determined as tubular adenomas. Abdominal computed tomography revealed ileal intussusception caused by large polyp that was detected by previous records and also multiple intraluminal polyps, (Figures 1 and 2). Patient underwent laparotomy that showed three small bowel intussusception segments. After manual reduction (Figure 3) of intussuscepted segments, two small enterotomies were performed on the jejunum and ileum. Polyps nearest to the entertomy were excised using Harmonic scalpel, (Ultracision; Ethicon Endosurgery, Inc., Cincinnati, Ohio, USA) (Figure 4), other polypectomies were performed by snare loop diathermy after introducing gastroscope through enterotomy (Figure 5). A total number of 34 polyps was removed from small intestine and sent to pathohistological examination (Figure 6). Sites of enterotomies were sutured with polyglactin stitches. The

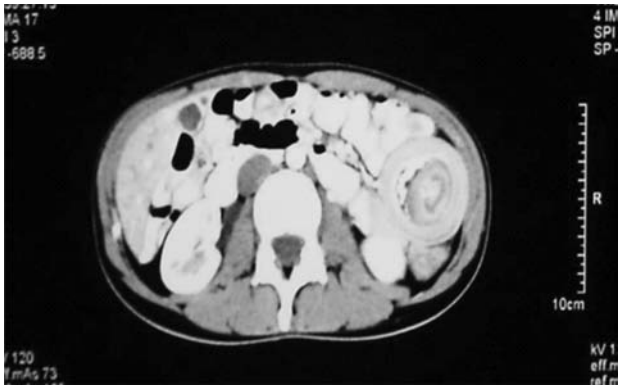

Fig. 1. Multislice computed tomography of abdomen. Ileal intussusception in left abdomen caused by large polyp.

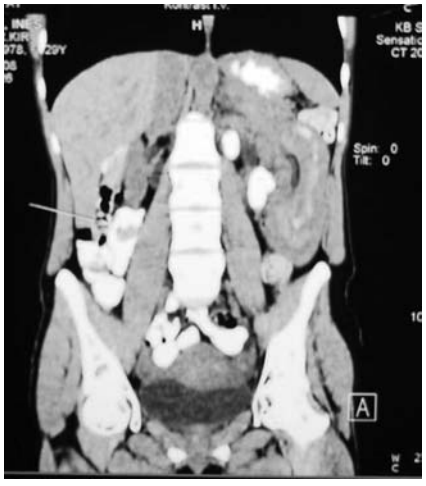

Fig. 2. Multislice computed tomography of abdomen. Large polyp that caused intussusception and two more polypoid intraluminal structures; one beneath large polyp on left side, another at right upper abdomen in the level of caudal liver margin.

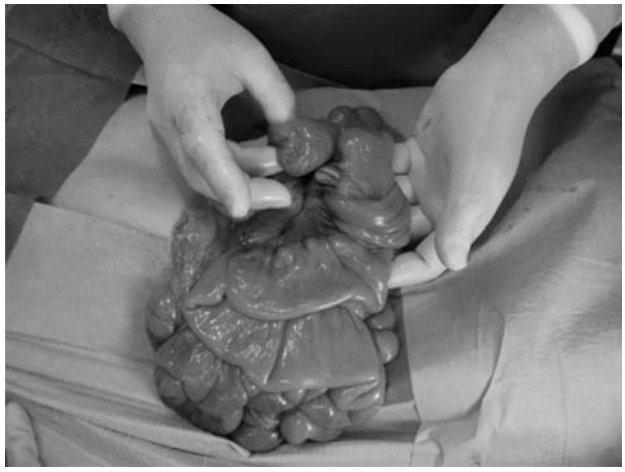

Fig. 3. Manual reduction of intussuscepted segments.

Fig. 4. Polyps nearest to enterotomy were excised using Harmonic scalpel.

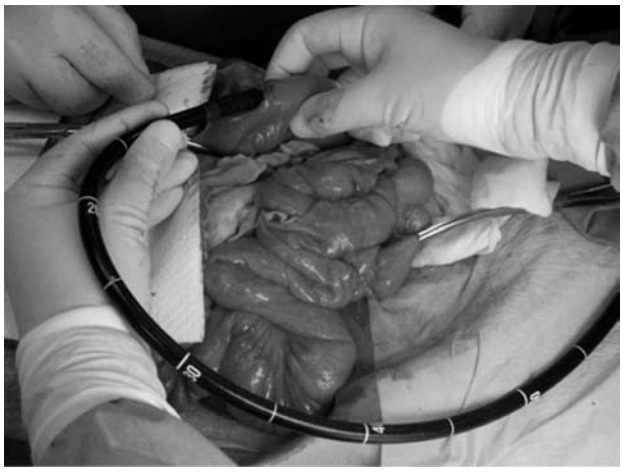

Fig. 5. Introducing gastroscope through the enterotomy.

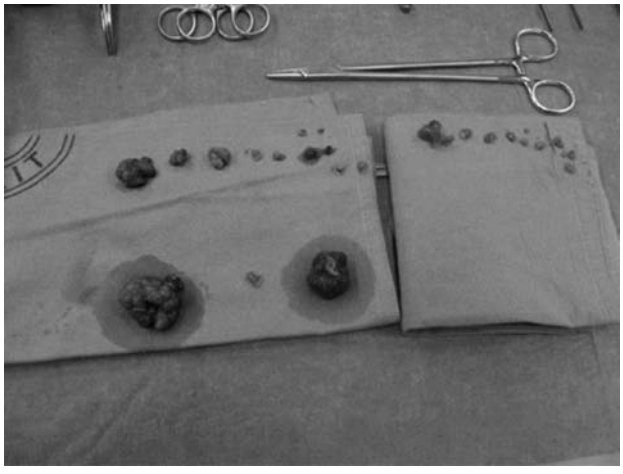

Fig. 6. A total number of 34 polyps was removed from the small intestine and sent to pathohistological examination.

patient's postoperative recovery was uneventful and most polyps were found to be partly hamartomatous, partly adenomatous with low-grade epithelium dysplasia.

Discussion

PJS is frequently manifested by digestive symptoms. These polyps cause significant clinical problems, especially acute and chronic intussusception and chronic blood loss[7]. Also, polyps in the PJS were considered to be premalignant, although it was initially believed for syndrome to have a relatively benign course[8,9] more recent reports described increased risk for intestinal and extra intestinal cancers[10–12]. Formerly these patients were managed by combination of gastroduodenoscopy and colonoscopy with polypectomy[11], and surgery was reserved only for complications such as intussusception and bleeding.

In the past, treatment focused on the removal of only those polyps causing recurrent intussusceptions, but current recommendations advocate prophylactic endoscopic removal of all polyps. Recent guidelines support complete colorectal surveillance with either colonoscopy or flexible sigmoidoscopy and barium enema at 18 years of age and every 3 years thereafter[5]. Upper gastrointestinal surveillance by means of endoscopy is recommended every 1–2 years from age 25. Others have advocated routine small bowel surveillance, including small bowel follow through every 2 years, with laparotomy and resection reserved for polyps greater than 1.5 cm in diameter[5,13].

Some recent studies have demonstrated the chemopreventive efficacy of rapamycin on PJS in a mouse model. Rapamycin (sirolimus) is a macrolide compound with immunosuppressant properties that is obtained from Streptomyces hydroscopicus. Rapamycin treatment led to a dramatic reduction in polyp burden and size[14].

There are two basic modalities in diagnosis and treatment of small bowel hamartomas: intra-operative enteroscopy (IOE) and double balloon enteroscopy (DBE). IOE is a combination of laparotomy (or laparoscopy) with endoscopy. It allows manipulation to ensure the entire small bowel is visualized and nearly all polyps are removed in an endoscopic or surgical manner[5]. There are reports of endoscopic resection of polyps through small intestine at double-balloon enteroscopy without laparotomy[12,15]. DBE is a new enteroscopy method that allows examination and treatment of the jejunum and ileum in almost all patients. IOE was accepted as the ultimate diagnostic and/or therapeutic procedure for complete investigation of the mall bowel, especially before the DBE era. The first clinical application of DBE occurred in 1999 and was reported 2001 by Yamamoto at al[15]. DBE was established into clinical practice in 2003 nd has taken the place of IOE for most indications[15].

The entire small intestine is rarely intubated when double balloon enteroscopy is performed via the oral or the anal approach alone. Also with booth approaches still remains question whether a complete exploration of small bowel can be achieved with these technique and previous surgical treatment with possible adhesions can make it impossible. Ideally, double balloon polypectomy should be performed when polyps are relatively small and without signs of intussusception. By combined surgical and endoscopic approach, small intestine can be completely inspected and also manual reposition of eventual intussusception can be made easily. The main goal in every case is to resect as more polyps as possible, without bowel resection.

Conclusion

In conclusion, repeated laparotomy with extensive small intestine resection can lead to short – bowel syndrome. The combined endoscopic and surgical approach provides total removal of gastrointestinal polyps and consequently a longer symptom-free interval, might preclude complications, including intussusception, bleeding, tumorigenesis and short bowel syndrome.

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INVAGINACIJA KAO KOMPLIKACIJA PEUTZ-JEGHERSOVOG SINDROMA: ENTEROSKOPSKA RESEKCIJA POLIPA KROZ LAPAROTOMIJU

SAŽETAK

Peutz-Jeghersov sindrom je autosomno dominantni nasljedni poremećaj karakteriziran hamartomima i mukokutanim pigmentacijama. Ovdje se opisujemo slučaj 30-godišnje žene koja je hospitalizirana i podvrgnuta dijagnostičkoj obradi zbog grčevitih bolova u trbuhu. Fizikalnim pregledom pri prijamu uočili smo mukokutane pigmentacije oko usana i na oralnoj sluznici. Dijagnostičkom obradom mnogobrojni polipi pronađeni su u želucu, tankom i debelom crijevu, sa znakovima početne ileo-ilealne invaginacije. Nakon endoskopskog uklanjanja dostupnih polipa, učinili smo enterotomiju i ukloniti ukupno 34 polipa iz tankog crijeva. Patohistološkim pregledom odstranjeni polipi okarakterizirani su kao hamartomi. Ovaj postupak omogućava uklanjanje većeg broja polipa, koji su potencijalno maligni, također s manje komplikacija nego nakon mnogobrojnih crijevnih resekcija.