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Case Report

JUVENILE POLYP IN ADULTS

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SUMMARY – Colorectal juvenile polyp as a pathologic entity was first described by Verse. These non-neoplastic lesions are most commonly found in children and infants, while in older children after the age of 14 and adults are a rare phenomenon. A 75-year-old female underwent colonoscopy. There was a pedunculated polyp in the transverse colon. Complete endoscopic electroresection of this polyp was performed and the polyp was sent for histopathologic analysis. Macroscopically, the polyp was described as a fragment of irregular round shape, size of about 2.5x2x1 cm, with fine-grained, reddish surface, showing dark red color on serial sections. Histologic examination of the polyp showed some irregularly distributed glands, some of which were cystically dilated. All glandular formations were coated with normal intestinal epithelium. The surface of the polyp was partially eroded and replaced by non-specific cellular granulation tissue. There were some signs of hemorrhagic infarction in the stroma of the polyp. Histopathologic examination indicated that histopathologic characteristics of this polyp corresponded to juvenile polyp. Juvenile polyps are very rarely found in adults. Therefore, we describe a case of this patient in her eighties with juvenile polyp localized in the transverse colon.

Key words: *Juvenile polyp; Adults; Transverse colon*

Introduction

Colorectal juvenile polyp as a pathologic entity was first described by Verse[1], and afterwards, its occurrence in childhood and adolescence was described by Diamond in 1939, and by Helwig in 1948[2,3]. These non-neoplastic lesions are most commonly found in children and infants (accounting for up to 90% of polyps in the colon), while in older children (especially after the age of 14) and adults are a rare occurrence[4-6]. The term 'juvenile' is not related to patient age, but to the polyp characteristic histologic appearance. Other common terms for this type of polyp are inflammatory, retention polyp or hamartoma[7]. Isolated juvenile polyp does not have malignant potential, but multiple appearances of these polyps represent a risk of developing cancer[8-10].

Case Report

A 75-year-old female sought doctor's help at the emergency department because of intensification of long-lasting symptoms of fatigue, abdominal bloating and heartburn. At that time, there was no noticeable objective finding. Because of the intensity of the symptoms she complained of, total colonoscopy with cecal intubation was performed and about 10 cm of the ileum was also examined. Endoscopic examina-

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tion showed that the colon was of normal architectonics and normal mucosa. In the transverse colon, around splenic flexure, there was a pedunculated polyp, its head was up to 4 cm in diameter (Fig. 1). Complete endoscopic electroresection of this polyp was done immediately, clips were applied to the stalk and then hemoclips to the polyp stump. The entire polyp was sent for histopathologic analysis to the Center of Pathology and Histology, Clinical Center of Vojvodina.

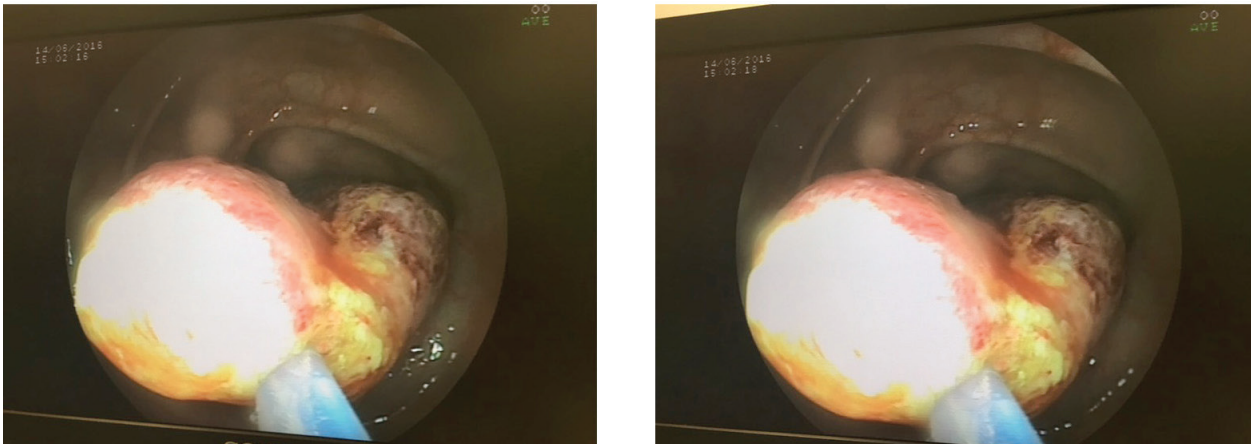

Fig. 1. Endoscopic findings.

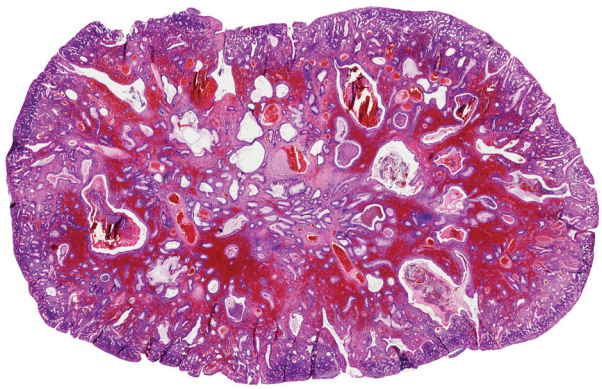

Fig. 2. Histologic structure of juvenile polyp (H & E).

Macroscopically, the polyp was described as an irregular round fragment, measuring about 2.5x2x1 cm, with fine-grained, reddish surface, showing dark red color on serial sections. The polyp was cut longitudinally while preserving the stalk which was submitted for analysis. A standard histologic technique was applied on the sample and the slides were stained with hematoxylin/eosin (H&E) histologic staining. Histologic examination of the polyp (Fig. 2) showed irregularly distributed glandular formations (crypts) of uneven diameter, some of which were dilated, with partially cystic appearance (Fig. 3A). All glandular formations were coated with nor-

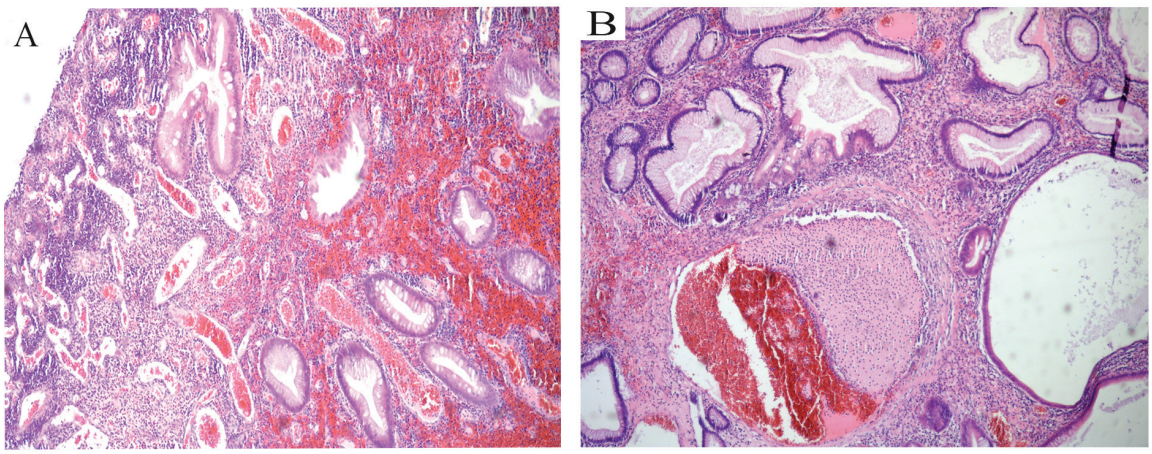

Fig. 3. Microphotography of juvenile polyp (H & E, 50x).

mal intestinal epithelium with a normal number of goblet cells (Fig. 3B).

The surface of the polyp was partially eroded and replaced by non-specific cellular granulation tissue, fibrin and granulocytes (Fig. 3B). The stroma of the polyp was made of loose connective tissue with a dense inflammatory infiltrate. There was also fresh blood and dilated blood vessels overfilled with blood in the stroma. These were corresponding signs of hemorrhagic infarction (Fig. 3A and 3B). Based on the findings described, conclusion of the histopathologic examination was that the histopathologic characteristics of this polyp corresponded to juvenile polyp.

Discussion

Polyps of the gastrointestinal tract are tumor-like formations, which are classified into neoplastic and non-neoplastic[11] according to their histologic characteristics. They can be pedunculated (with a stalk) or sessile (without a stalk). Polyps are often asymptomatic, and therefore the prevalence in the general, especially in adult population is not known.

Juvenile polyps belong to the group of non-neoplastic polyps. The most common occurrence is in children and infants (90% of all juvenile polyps), while in adults it is very rare. The pathogenesis of juvenile polyps has not yet been fully explained. In 1963, Roth and Helwig suggested four phases which lead to the formation of polyps, i.e., ulceration of mucosa or inflammation of the leading excretory duct of colon glands followed by obstruction, proliferation and dilatation of the affected glands, formation of granulation tissue and further development of glands and granulation tissue, which leads to the development of polyp[9]. This course of events is possible to happen in children and adults.

Juvenile polyp represents a solitary polypoid tumor-like mass of tissue that protrudes into the lumen of intestine. Clinically, it is most commonly manifested by bleeding from the lower gastrointestinal tract[8-10,12], usually from the rectum, by abdominal pain and/or transanal prolapse[13]. In our patient, the symptoms were non-specific and described as fatigue, abdominal bloating, and heartburn.

The most frequent localization of juvenile polyp is the rectum (over 65%), followed by the left colon[3]. In this case, the polyp appeared in not so typical place, in the transverse colon.

Macroscopically, juvenile polyp is described as formation of pedunculated lobular polyp with eroded surface, from 2 mm to 2 cm in diameter on average.

A histologic study conducted by Dayani and Kamal in 1983 showed that juvenile polyp had two basic components, epithelial and stromal. Histologic structure of these changes is characterized by cystically dilated glandular formations filled with mucus and coated with normal epithelium. Cystic changes are found in each polyp, and ulceration and regeneration changes of the epithelium are often seen on the surface of the polyp. Stromal connective tissue of these polyps is richly vascularized, often with signs of inflammation with inflammatory infiltrate which can contain polymorphonuclear granulocytes[14]. Because of the histologic elements described, an overlap in the terminology occurred and various terms have been used for juvenile polyp, such as retention, inflammatory, hyperplastic. Which term will be used depends on the findings that predominate[15].

In the presented case, the polyp had all of the above mentioned histologic characteristics, and what made it stand out were the areas of hemorrhagic infarction that appeared probably due to torsion of the polyp.

Since juvenile polyp usually appears in the first 10 years of life, with the peak incidence at 2-5 years of age[14], the incidence and prevalence of this type of polyp in adult population remain unknown. According to recent research, the incidence of juvenile polyp in Denmark could be estimated between 1:45 000 and 1:65 000[16], while according to the retrospective study conducted by Mesiya *et al.*, the prevalence of hamartomatous polyps in people having undergone colonoscopy was 0.15%, with a 2.8:1 gender ratio in favor of males and average age of 55[13]. In the case presented, especially interesting was the patient's age of 75 years.

Differential diagnosis of juvenile polyp in adults must eliminate certain conditions, i.e., inflammatory (tumor-like) polypoid lesions, juvenile polyposis, adenomas, familial adenomatous polyposis (FAP), and hamartoma of the digestive system.

In adults, juvenile polyps can and are often classified as inflammatory polyps because of the extreme inflammation and reactive changes. The term inflammatory polyp (pseudopolyp) is used for changes caused by inflammation and regenerating epithelium. Inflammatory polyps are often surrounded by ulcerations and most often they occur in chronic inflammatory bowel

diseases such as Crohn's disease and ulcerative colitis[17,18]. They have no malignant potential.

Juvenile polyposis coli is an autosomal dominantly inherited disease and it is manifested by the appearance of multiple polyps throughout the gastrointestinal tract[19]. It is of great importance to differentiate solitary juvenile polyps from juvenile polyposis coli syndrome, since juvenile polyp represents a change that does not have malignant potential, as opposed to juvenile polyposis coli[15]. The two genes which are currently associated with juvenile polyposis coli syndrome are *BMPR1A* and *SMAD4*. People with mutations of these genes have increased lifetime risk of developing multiple juvenile polyps or cancer of digestive system[19-22].

Adenomas are lesions of the colon with the incidence of up to 27%, and they have a malignant potential[22]. Based on their histologic characteristics, they can be divided into tubular, villous and tubulovillous adenomas. This change is slow-growing (it doubles in size in 10 years), and malignant transformation is rare in polyps smaller than 1 cm[23]. The risk of cancer in adenomas is significantly higher in adenomas with progressive features (diameter of over 10 mm, villous structure, and high grade dysplasia)[24].

Familial adenomatous polyposis is a disease which is autosomal dominantly inherited with the incidence of 1 *per* 8 000 births. About 20% of patients affected with FAP do not have any family history of the condition. It is characterized by the appearance of a large number of polyps (over 300), which are different in size. It is clinically manifested by abdominal pain, diarrhea, and bleeding with consequent anemia. The disease has a high degree of malignant potential, and if patients up to the age 55 are not treated, development of malignancy is 100% sure. Due to this fact, all family members must be examined in detail[25-27].

In adults, some other polyposis can occur and differential diagnosis has to be applied. In those with Peutz-Jeghers syndrome, polyps most frequently occur in small intestine. This is a disease with autosomal dominant inheritance pattern, and it is a result of the mutation of the short arm on chromosome 19p[28]. Cowden syndrome is also followed by hamartomatous polyps in gastrointestinal tract and mucocutaneous manifestations (especially on the facial skin and mucous membranes). It is an autosomal dominant inherited disorder with a high malignant potential[29].

Endoscopically, it is often difficult to differentiate juvenile polyp from other polyps or polyps from the group of colon polyposis. Therefore, certainly, the best option is to remove the change and send it for histopathologic analysis. Histopathologic diagnosis of juvenile polyps, especially in children, is usually not a major problem in terms of differential diagnosis, except for the very rare cases of mixed familial polyposis syndromes[13,30].

We can conclude that juvenile polyps are very rarely found in adults. Therefore, this paper describes a patient in her eighties with juvenile polyp localized in the transverse colon.

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Sažetak

JUVENILNI POLIP KOD ODRASLIH OSOBA

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Kolorektalni juvenilni polip kao patološki entitet prvi opisuje Verse. Ove ne-neoplastične lezije najčešće susrećemo kod djece i dojenčadi, dok kod starije djece i odraslih poslije 14. godine života predstavljaju rijetku pojavu. Osobi ženskoga spola u dobi od 75 godina napravljena je kolonoskopija. Na transverzalnom dijelu kolona nađen je pedunkularni polip. Načinjena je kompletna endoskopska elektroresekcija polipa, a polip poslan na patohistološku analizu. Polip je makroskopski opisan kao nepravilan okruglasti fragment dimenzija oko 2,5x2x1 cm, sitnozrnate, crvenkaste površine, koji je na serijskim rezovima tamno-crvene boje. Histološkim pregledom u polipu su nađene i opisane nepravilno raspoređene žljezdane formacije cističnog izgleda od kojih su pojedine dilatirane. Sve žljezdane formacije su obložene pravilnim epitelom intestinalnog tipa, a površina polipa je dijelom erodirana i zamijenjena staničnim nespecifičnim granulacijskim tkivom. U stromi polipa se uočavaju znaci hemoragijskog infarkta. Patohistološki nalaz pokazao je da polip po svojim patohistološkim karakteristikama odgovara juvenilnom polipu. Pojava juvenilnih polipa kod odraslih predstavlja jako rijetku pojavu i zbog toga opisujemo ovaj slučaj bolesnice s juvenilnim polipom otkrivenim u osmom desetljeću života s lokalizacijom na transverzalnom kolonu.

Ključne riječi: *Juvenilni polip; Odrasli; Transverzalni kolon*