

Blue Rubber Bleb Nevus Syndrome: Case Report and Literature Review

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Abstract

Blue Rubber Bleb Nevus Syndrome (BRBNS) is a rare disorder characterized by multiple cutaneous venous malformations in the skin and gastrointestinal tract associated with intestinal hemorrhage and iron deficiency anemia. Other organs may also be involved.

BRBNS has a potential for serious or fatal bleeding. The causes of this syndrome are unknown. Its most common presentation is in the form of sporadic cases, but dominant autosomal inheritance has been described. Although it was first recognized by Gascoyen in 1860, only one hundred years later did Bean further describe these lesions and coined the term BRBNS. A MEDLINE search yielded about 200 case reports published till 2003.

We present a case of this syndrome diagnosed in a 16-year-old patient with both upper and lower gastrointestinal bleeding. He had severe anemia and venous swellings on the trunk. Similar lesions were found in the stomach, bowel and on his foot. In addition, we review the available literature on the epidemiology, clinical features, associated conditions, diagnosis and treatment.

Key words

Blue rubber bleb nevus syndrome - hemorrhage - anemia-vascular malformation - endoscopic therapy

Rezumat

Blue Rubber Bleb Nevus Syndrome (BRBNS) este o afecțiune rară caracterizată prin existența a multiple malformații venoase cutanate și a tractului gastrointestinal, asociate cu hemoragii digestive și cu anemie feriprivă. Pot fi

afectate și alte organe. BRBNS este o afecțiune importantă datorită potențialului de sângerare masivă sau chiar fatală. Etiologia afecțiunii este necunoscută. Boala survine sporadic, dar a fost descrisă și transmiterea autosomal dominantă. Afecțiunea a fost pentru prima oară observată de către Gascoyen în 1860, o sută de ani mai târziu, în 1958, fiind descrisă și denumită de Bean. În momentul de față sunt descrise aproximativ 200 de cazuri, publicate pe MEDLINE.

Prezentăm cazul unui tânăr de 16 ani diagnosticat în serviciul nostru cu acest sindrom, prezentând hemoragie digestivă superioară și inferioară. Pacientul prezenta anemie severă și tumorete vasculare tegumentare la nivelul toracelui și al membrilor inferioare. Aceleași leziuni au fost evidențiate la nivelul stomacului și colonului. Articolul face o trecere în revistă a principalelor date din literatura de specialitate legate de epidemiologia, tabloul clinic, leziuni asociate, diagnostic și tratament.

Introduction

Blue rubber bleb nevus syndrome (BRBNS) is a syndrome characterized by gastrointestinal and cutaneous hemangiomas. In 1860, Gascoyen first described an association between cavernous hemangiomas of the skin and similar lesions in the gastrointestinal (GI) tract. In 1958, William Bennet Bean further described these lesions and coined the term Blue Rubber Bleb Nevus Syndrome (BRBNS) (1-3).

BRBNS is important because of its potential for severe or fatal bleeding.

Case report

We present a case of BRBNS diagnosed in a 16-year old boy. He was admitted to hospital for hematemesis, melena and severe anemia. The patient had a history of more than 20 hospitalizations and blood transfusions for bleeding

since he was 4 year old and a history of removal of gastric vascular tumors. There was no family history of the disease.

At the physical examination, the patient was extremely pale, tachycardic and presented a nodule of 2 cm of diameter at the sole of the left foot, in which small caliber vessels could be visualized, and another similar on the first left toe (Fig.1). The same vascular protrusions were found in the mouth (Fig.2).

The blood cell count at admission revealed: Hb= 9.7 g/dl, Ht = 28 %, microcytosis , hypochromia. The leukocyte and platelet counts were normal. Before receiving a transfusion of erythrocytes, blood samples were collected and an iron serum level of 8 μ mol/l was found.

The upper gastrointestinal endoscopy revealed four small wine – color lesions in the stomach and a larger one in the antrum (Figs.3,4).

The colonoscopy showed wine-color vascular lesions of different sizes (the largest vascular tumor was about 1.5 cm) in the rectum, sigmoid, descending and cecum, with raised , irregular surfaces, which were brittle in contact with the endoscope. In the cecum, near the ileo–cecal valve there was another larger lesion , measuring approximately 2 cm at its widest diameter (Figs.5-7).

The diagnostic search for a clinical condition presenting the association of vascular tumors of the skin with severe iron deficiency anemia, the history of more than 20 episodes of melena and hematemesis, led the authors to consider the diagnosis of BRBNS.

The investigation of systemic involvement was completed with an abdominal ultrasound examination, skull tomography, retinoscopy. All were normal.

The therapeutic decision was difficult and was the result of working together with the surgical team. Our therapeutical schedule was: supportive therapy with octreotide to decrease blood flow, proton pump inhibitors, iron replacement and blood transfusions, endoscopic sclerotherapy and argon plasma coagulation of the vascular tumors.

Unfortunately, we did not have a good compliance from the patient's family and the patient left the hospital after two sessions of sclerotherapy.

Discussion

BRBNS is a rare disorder with only approximately 200 cases reported in the world literature. Most cases are sporadic but autosomal dominant inheritance has been reported. The disorder has not been localized to a specific chromosome or gene defect.

The mortality and morbidity associated with BRBNS depend on the extent of visceral organ involvement. Most patients have a normal life span. No malignant transformation of cutaneous or visceral lesions has been reported. Some patients may have severe hemorrhage from the GI tract, sometimes fatal. Serial transfusions and periodic surveillance can improve the outcome of the disease. Lesions involving bones and joints can cause profound

discomfort and loss of function, requiring amputation in some cases. Central nervous system involvement is rare, but might be fatal (4-7).

The syndrome has been reported in all races, although Caucasians appear to be most frequently affected. The disease affects males and females equally .

In BRBNS, the skin and GI system are most frequently involved, with multiple vascular blebs or nodules. However, case reports have demonstrated that the central nervous system, thyroid, parotid, eyes, oral cavity, musculoskeletal system, lungs, kidney, liver, spleen and bladder may also be affected (2-5).

Cutaneous lesions are often apparent at birth or manifest in early childhood, but late onset, beyond midlife has also been reported. GI involvement usually becomes evident during early adulthood (2,3,8). Histopatologic examination of lesions reveals blood-filled ectatic vessels, lined by a single layer of endothelial cells, with surrounding thin connective tissue. Dystrophic calcification may be present (4-6).

Symptoms and signs vary depending on the organ system involved. Patients may report fatigue from occult blood loss. Hematemesis, melena or rectal bleeding may prompt emergency presentation, and this was also the presentation of the disease in our patient. When bones are involved, there may be complaints of joint pain or impaired ambulation. Extracutaneous lesions also may result in epistaxis, hemoptysis, hematuria or menorrhagia.

Physical findings reveal either cutaneous or extracutaneous manifestations. Skin lesions are usually highly characteristic, as multiple, protuberant dark blue vascular tumors, a few millimeters to several centimeters in diameter. They have the look and feel of a rubber nipple. Lesions may be few in number or range into hundreds. The lesions are principally located on the upper limbs, trunk, perineum, but they may occur anywhere.

In the GI tract, vascular malformations may occur anywhere from oral to anal mucosa, but predominate in the small bowel. In contrast to the skin lesions, the GI lesions often bleed. They may spontaneously rupture causing acute



Fig.1 Vascular protrusion on the left foot.



Fig.2 Vascular protrusion in the mouth.



Fig.5 Vascular protrusion in the descending colon.



Fig.3 Vascular protrusion on the posterior wall of the stomach.

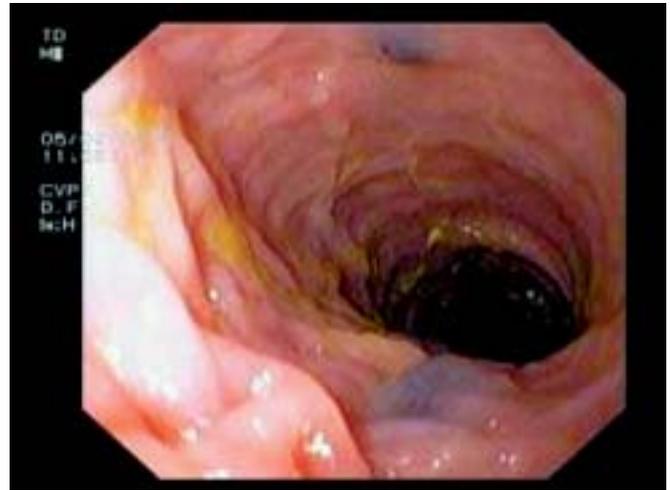


Fig.6 Endoscopic aspect of the sigma with two vascular protrusions.

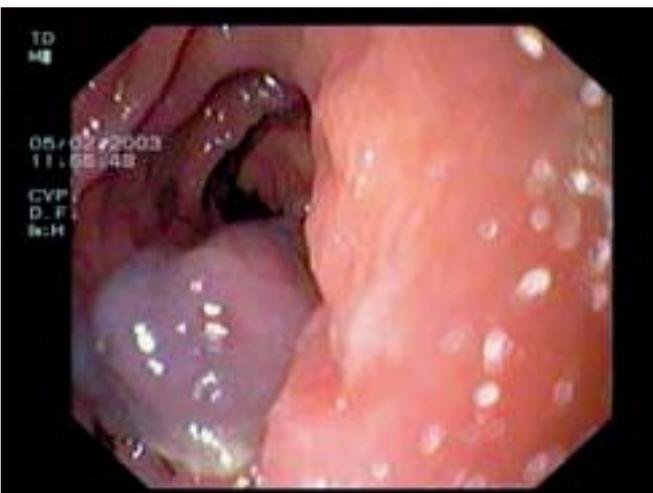


Fig.4 Giant vascular protrusion in the descending colonum.



Fig.7 Endoscopic view of the ascending colon with vascular protrusion.

hemorrhage and death. However, most bleedings from the GI tract are slow, minor, chronic and occult, resulting in iron deficiency anemia from ongoing loss. A case of thrombocytopenia and disseminated intravascular coagulation has been

reported in association with BRBNS. Other complications include volvulus and bowel infarction. These diagnoses should be considered in patients with BRBNS and abdominal pain (9).

Orthopedic manifestations include skeletal bowing, pathologic fractures, bony overgrowth and arthropathy.

Blue rubber bleb nevi have been reported in the skull, central nervous system, thyroid, parotid, eyes, oral cavity, lungs, pleura, pericardium, musculoskeletal system, peritoneal cavity, mesentery, kidney, liver, spleen, penis, vulva and bladder (9-11).

Fecal occult blood test should be performed in order to screen for occult blood loss from gastrointestinal lesions. Screening for iron deficiency anemia has to be performed. Presence of hematuria may be caused by lesions in the urinary bladder.

Radiographic images may be useful in suspected bone or joint involvement and radiographic contrast techniques detect GI lesions but endoscopy is considered to be superior.

Upper GI endoscopy is more sensitive than upper GI series and colonoscopy more useful than a barium enema. Endoscopy also provides the opportunity to treat and diagnose the lesions. Magnetic resonance imaging detects extracutaneous lesions in asymptomatic family members.

The treatment of GI venous malformations depends on their number, location, size and symptoms. Sometimes there are so many blebs, that complete eradication is impossible.

Bleeding from GI lesions usually is managed conservatively with iron supplement and blood transfusion when necessary. Endoscopic coagulation or removal is an effective modality in case of repeated bleeding. Experience with endoscopic sclerotherapy suggests low efficiency and complications may occur by the development of ulcerations and strictures. Endoscopic laser (Nd: YAG) photo-coagulation and plasma argon coagulation have been used successfully for lesions in the gastrointestinal tract (4,13-18).

When traditional methods fail and the vascular lesions are confined to a segment of the GI tract, resection of the involved segment of gut may be indicated (19). This approach should be used with caution because recurrence may occur after excision.

Osteoarticular pathology is managed with orthopedic and supportive measures (13,20,21).

BRBNS prognosis depends on the extent of visceral organ involvement. New GI lesions may continue to occur, so patients need periodic GI and hematologic follow-up. Rarely, acute GI hemorrhage or central nervous system involvement may result in death (4,14,18,20).

Conclusion

To the best of our knowledge, this is the first case report of BRBN syndrome published in the Romanian medical literature. Our patient has the risk of further GI hemorrhages and requires a careful follow-up.

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