Extensive Blue Rubber Bleb Nevus Syndrome with Multiple Gastrointestinal Venous Malformations: A Case Report

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Abstract

Blue rubber bleb nevus syndrome is a sporadic disease with widely distributed dark blue papules and nodules and soft skin-colored compressible protuberances (rubber blebs) as well as large vascular malformations. Gasterointestinal lesions are documented by upper endoscopy and colonoscopy; hemorrhages from these lesions create iron-deficinecy anemia. Other sites of visceral involvement are less common.

We report a 20-year-old male with multiple blue venous nodules on the face, neck, trunk and limbs with occasional bleeding. In addition, he had similar lesions in buccal mucosa and genitalia. Endoscopic examination revealed blue nodular lesions in gastrointestinal tract. Lab tests showed iron deficiency anemia. *(Iran J Dermatol 2009;12: 99-102)*

Keywords: blue rubber bleb nevus syndrome, Bean syndrome, venous malformation, gastrointestinal bleeding, iron deficiency anemia

Introduction

Blue rubber bleb nevus syndrome (BRBNS) is a rare vascular anomaly syndrome consisting of multifocal venous malformations (VM). The malformations are most prominent in the skin, soft tissues, and gastrointestinal (GI) tract, but may occur in any tissue such as central nervous system (CNS), lung and heart. This association of "hemangiomas" of the skin and GI tract was first reported in 1860 [1] ,and fully characterized by William Bean in 1958, giving rise to the eponym "Bean syndrome" [2]. The cutaneous lesions of BRBNS are generally small, measuring less than 1–2 cm, and blue to purple in colour. Bean was the first to draw attention to the unique quality of these compressible cutaneous lesions that he labeled as "blue rubber-bleb nevi." A patient may have from several to hundreds of cutaneous lesions. Nonetheless, the GI lesions of BRBNS are more clinically relevant than the skin and soft tissue lesions. Patients usually exhibit GI bleeding at an early age that continues throughout their life. Massive sudden hemorrhage rarely occurs. Rather, patients are chronically anemic, requiring lifelong iron replacement and repeated blood transfusions. Although there are reported cases that appear to have an autosomal dominant transmission, most cases are sporadic [3–5].

Case Report

A 20-year-old male presented with multiple, bluish, bleb- like, nodular lesions scattered all over the face, neck, trunk, limbs specially hands and feet and buccal mucosa and penis since the birth (Figure1). Nodules were deep bluish, soft, 0.5-5.0 centimeters in size, spherical with smooth surface. Nodules were partially compressible with feeling of dermal herniation and refilled slowly on releasing the pressure. The lesions were not painful and tender but they had occasional bleeding. Family history was negative. Milestones and IQ were normal. Haemoglobin level was 11.4g/dl (normal value: 14-18 g/dl) with serum ferritin level 10.34 (normal value: 13-400ng/ml) indicating presence of iron deficiency anemia.

Urine analysis reveals microscopic hematuria. Occult blood in stool exam was positive. On endoscopy, in distal one third portion of esophagus, a vascular mass 1X1cm in size was detected. In addition, endoscopy reveals multiple bluish nodules in stomach. In proximal portion of deudenum, one similar lesion was seen. Colonsocopy showed multiple blue nodules in distal colon. Histopathology of the nodule showed irregular cavernous channels in the deep dermis and subcutis and sweat and

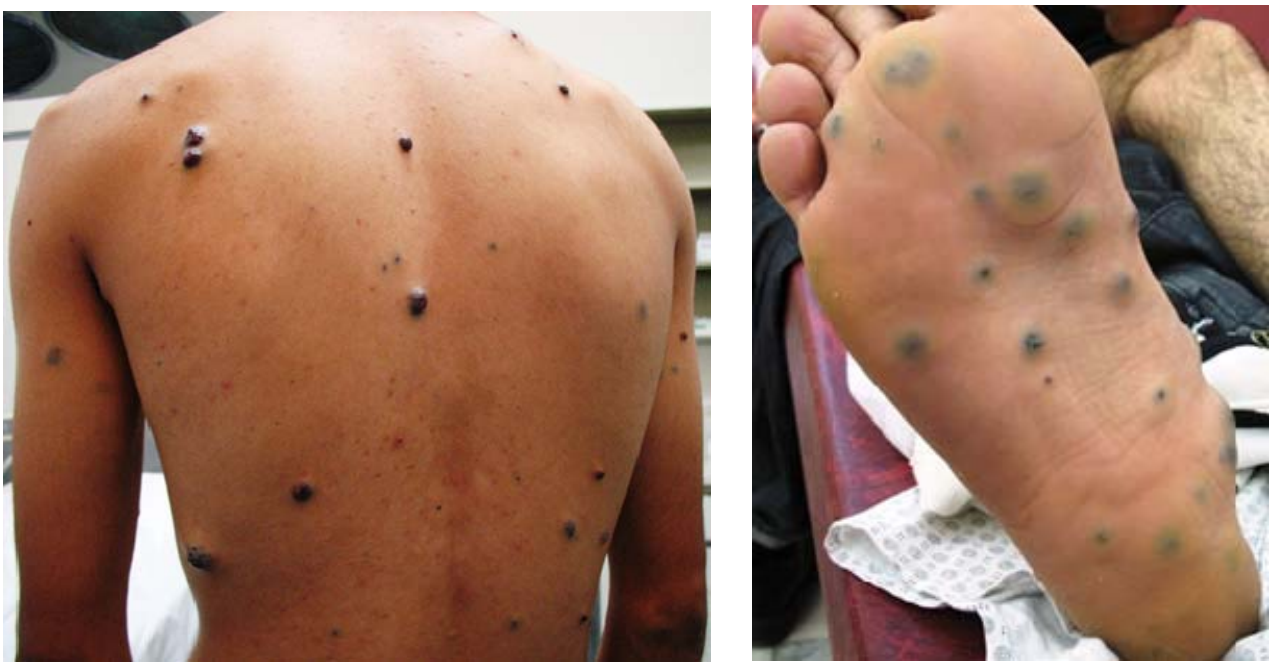

Figure1. *Multiple bleb-like, nodular lesions on back and plantar surface of the foot.*

sebaceous glands embedded in dilated vascular spaces (Figure 2,3).

Discussion

BRBNS is a rare disorder with characteristic vascular malformations of the skin, gastrointestinal system, and, less often, other organ systems. The preponderance of evidence shows that these malformations are venous in nature. To date, fewer than 200 cases of BRBNS have been reported [6]. Lesions may be seen on any cutaneous surface, but limbs, trunk, and face are the most frequently involved sites. The findings in BRBNS are a few to hundreds of skin lesions. Three types of lesions have been described [2]. Type I is a large disfiguring venous malformation that may increase in size and obstruct vital tissues. Type II, the most common of BRBNS lesions, is the "blue rubber nipple"—a bluish, thin-walled, blood-filled sac. This lesion is easily compressible and refills slowly on release of pressure. In addition, this type may be asymptomatic but is commonly associated with pain ; and hyperhidrosis may be present [6-10]. Type III is an irregular blue-black macule or papule. These lesions may be punctate, merge with adjacent pigmented nevi, and rarely blanch on pressure [11]. The lesions in our patient were similar to type II, bluish thin-walled, blood filled sac, easily compressible and slowly refilled. Although pain is common in this type, our case had no pain.

Generally, the most common cutaneous lesions of BRBNS present at or shortly after birth, vary from 1 mm to 10 cm in diameter, and often increase in size and number with age [8-9]. They do not appear to bleed spontaneously or undergo malignant change [9]. Our case had lesions from the birth and his lesions had been increased in size and number with age, but he complained from occasional bleeding.

Gastrointestinal venous malformations predominantly occur in the small intestines, but lesions may be found anywhere from the mouth to the anus [7,11]. Gastrointestinal tract malformations are subject to frequent bleeding, potentially resulting in occult blood loss and iron-deficiency anemia [6]. Intestinal lesions may also lead to abdominal pain, intussusception, volvulus, infarction, or internal hemorrhage [12]. Our patient did not have any GI symptoms such as abdominal pain, but we found positive occult blood in stool exam and iron deficiency anemia. In addition, endoscopy and colonoscopy showed multiple venous lesions in esophagus, stomach, deudenum, and colon.

Histologically, vascular lesions in BRBNS are similar to other venous malformations. They are characterized by a cluster of dilated irregular capillary spaces lined by a thin layer of endothelial cells in the dermis or subcutaneous fat. Surrounding fibrous stoma and occasional smooth-muscle cells form the walls of the lesion. The walls of the vascular structures vary in thickness, ranging from

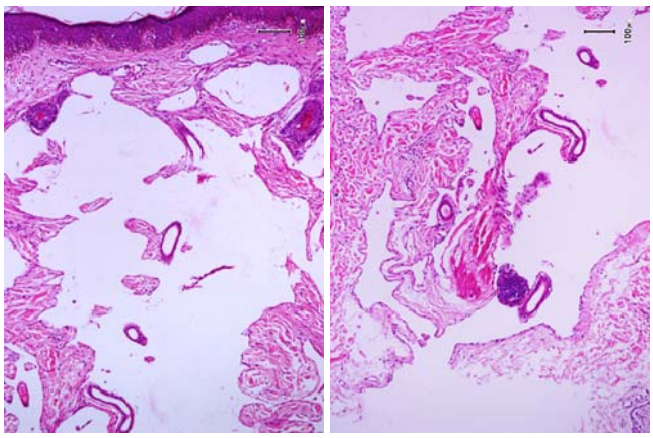

Figure 2. *Irregular cavernous channels in the deep dermis and subcutis (H&E*10).*

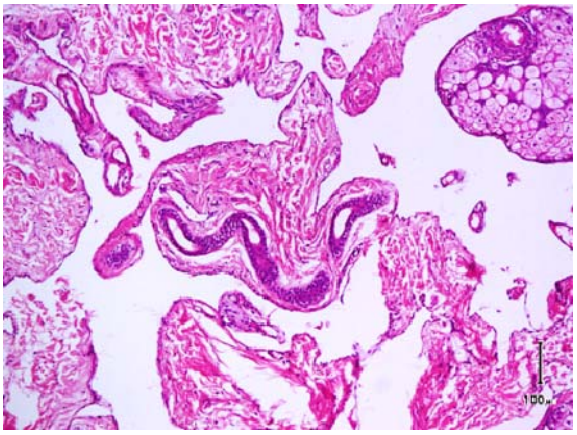

Figure 3. *Sweat & sebaceous glands embedded in dilated vascular spaces (H&E*40).*

thick and fibrous to thin and delicate. In our case, histopathology revealed irregular cavernous channels in the deep dermis and subcutis. Sweat and sebaceous glands embedded in dilated vascular spaces.

Farmer and Hood [13] state that the most reproducible picture is of a circumscribed, subcutaneous nodule consisting of multiple, large blood-filled vascular channels lined by flat endothelial cells. In some cases, sweat gland proliferation may be seen around the vascular structure [10]. Although the lesions of BRBNS were described in the literature as hemangiomas, the venous malformations of BRBNS and hemangiomas differ in many ways easily recognized by microscopic examination. The historic misdiagnosis of these lesions by pathologists reflects traditional, but inappropriate use of the term "hemangiomas" for all benign vascular lesions, and in particular, use of the term "cavernous hemangiomas" for lesions with large vessels and thin walls histologically equivalent to venous malformations.

In the past, the vascular lesions of BRBNS were inaccurately described as hemangiomas [2]. Most reports of hemangiomas in the context of BRBNS have been referring to so-called cavernous hemangiomas, now widely recognized as venous malformations.

BRBNS is a rare disorder of which most of our knowledge is on the basis of anecdotal reports. Although the lesions of this disorder have been historically and inaccurately labeled as hemangiomas, it is evident that the lesions seen in this disorder are truly venous malformations. Given the nature of these lesions, the term "blue rubber bleb venous malformation syndrome" should be used instead of "blue rubber bleb nevus syndrome.". Our case was a severe and extensive form of blue rubber bleb nevus syndrome that may need close follow up and further investigations for GI involvements and other possible visceral lesions.

References

1. Gascoyen M. Case of naevus involving the parotid gland, and causing death from suffocation. Naevi of the viscera. Trans Pathol Soc (Lond) 1860;11:267.
2. Bean WB. Blue rubber-bleb nevi of the skin and gastrointestinal tract. In: Bean WB. Vascular Spiders and Related Lesions of the Skin. Springfield, IL: Charles C Thomas;1958:17–185.
3. Walshe MM, Evans CD, Warin RP. Blue rubber bleb naevus. Br Med J 1966;2:931–2.
4. Gallione CJ, Pasyk KA, Boon LM, et al. A gene for familial venous malformations maps to chromosome 9p in a second large kindred. J Med Genet 1995;32:197–9.
5. Chen PP, Weishaar PD, Murray TG. Blue rubber bleb nevus syndrome. J Pediatr Ophthalmol Strabismus 1997;34:321–3.
6. McKinlay JR, Kaiser J, Barrett TL, Graham B. Blue rubber bleb nevus syndrome. Cutis 1998;62:97–8.
7. Bonde CT, Jakobsen E, Hasselbalch HC. "Blue rubber bleb nevus syndrome"–or Bean's syndrome. Ugeskr Laeger 1997;159:4274-5.
8. McCauley RG, Leonidas JC, Bartoshesky LE. Blue rubber bleb nevus syndrome. Radiology 1979;133:375-7.
9. Crepeau J, Poliquin J. The blue rubber bleb nevus syndrome. J Otolaryngol 1981;10:387-90.
10. Carr MM, Jamieson CG, Lal G. Blue rubber bleb nevus syndrome. Can J Surg 1996;39:59-62.
11. Oranje AP. Blue rubber bleb nevus syndrome. Pediatr Dermatol 1986;3:304-10.

12. Browne AF, Katz S, Miser J, Boles ET Jr. Blue rubber bleb nevi as a cause of intussusception. J Pediatr Surg 1983;18:7-9.

13. Farmer ER, Hood AF, editors. Pathology of the skin. Norwalk: Appleton and Lange; 1990.