

Diagnostic significance of Peutz–Jeghers syndrome: A case report with oral physician's perspective

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ABSTRACT

Peutz–Jeghers syndrome is a genetic disorder characterized by intestinal polyposis and pigmentation of skin and mucous membrane. Gastrointestinal polyps are considered as premalignant and also the occurrence of rare malignancies at nongastrointestinal sites is high in these patients. This article demonstrates the importance of oral physician in the diagnosis of this inherited syndrome, thereby minimizing the morbidity in a young male patient who presented with multifocal pigmentation.

Key words: Cancer susceptibility syndrome, intestinal polyps, LKB1/STK11, melanin pigmentation, Peutz–Jeghers syndrome

INTRODUCTION

Peutz–Jeghers (PJ) syndrome is a rare disorder characterized by intestinal polyposis and pigmentation of the skin and mucous membrane. Sir Jonathan Hutchinson in 1896 described the dermal involvement in this disorder, when he reported identical twins, one of whom subsequently died of intussusceptions.^[1] Peutz of the Hague in 1921 was the first to describe this familial condition in a medical literature.^[2] In 1949 a work of Jeghers, McKusick, and Katz was published under the titles of “Generalized intestinal polyposis and melanin spots of the oral mucosa, lips and digits.” The eponymic term Peutz–Jeghers syndrome was introduced by radiologist Andre J. Bruwer in 1954. The incidence is 1 in 30,000–12,000 live births.^[2] There is no ethnic or racial predisposition.^[3] Both sexes can transmit the disorder and as well they are equally affected.^[2,3]

The mutated gene responsible for this, LKB1 (STK11),

is located on chromosome 19p 13.3.^[3,4] It is the first gene to be recognized as predisposing to cancer as a result of disability to encoded kinase activity, and consequently is the first cancer-susceptibility syndrome to be identified.^[3,5] This gene appears to control growth and differentiation in the gastrointestinal (GI) tract, as shown by the development of hamartomas. The same gene is also expressed in tissues, as shown by abnormal freckling.^[6]

CASE REPORT

A 23-year-old male patient reported to the Department of Oral Medicine and Radiology with a complaint of decayed tooth in the upper right back tooth since 1 month. There was no history of sensitivity or pain associated with the tooth. Medical history revealed recurrent abdominal pain in epigastric and periumbilicus area since 3 months. The patient was advised antacids by a private medical practitioner, with no relief from the symptoms. Family history revealed nonconsanguinous parents. The patient's father and grandfather had suffered from some abdominal complaints and expired few years before. General physical examination revealed the presence of multifocal brown-to-black pigmentation on the palm, feet, periorbital, and intraorally on labial and buccal mucosa [Figure 1]. History revealed the presence of the pigmentation since early childhood. There was no change in color or number of pigmentations since their being noticed. The patient gave

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a history of similar pigmentations in his late father and paternal grandfather.

The widespread melanin pigmentation suggested the possibility of disorders that manifest with multifocal pigmentation and GI symptoms, such as Addison’s disease, hemochromatosis, PJ syndrome. Other disorders that commonly present with multifocal pigmentation include the following: dyskeratosis congenita, Carney syndrome, Gardner’s syndrome, Laugier–Hunziker syndrome, Cronkhite–Canada syndrome, incontinentia pigmenti, drug-induced pigmentation, and disorders associated with café’ au lait pigmentation.

The patient was subjected for GI investigation related to his abdominal complaint. Upper GI endoscopy [Figure 2] and colonoscopy showed multiple small-to-large (0.5–5 cm) cauliflower-like pedunculated polyps spread all over the stomach, colon, and rectum. Barium meal study was correlated with endoscopic findings. The large gastric polyp was excised by endoscopy, and histopathologic examination was suggestive of PJ type of gastric polyp. Following the removal of gastric polyp, the patient had improvement from abdominal pain. He was put on antioxidant to reduce the chances of malignant transformation of polyps and followup examination every 2 years is advised to detect any sign of malignancy associated with GI polyp.

DISCUSSION

PJ syndrome is an autosomal dominant inherited disorder with a family history in majority of the cases; however, 50% of cases are sporadic and represent new mutations.^[3,5] In our case, two of patient’s family members had GI complaints and pigmentation, which suggests the disorder to be genetically transmitted.



Figure 1: Melanotic pigmentation of right buccal mucosa

The manifestation of this syndrome is variable. Normal carriers and monosymptomatic cases are also recognized.^[4] Giardello *et al.* has proposed diagnostic criteria to be histopathologic confirmation of hamartomatous GI polyps and two of the following features: small bowel polyps, positive family history, and pigmented skin or mucosal brown macules.^[3]

Mucocutaneous melanin pigmentation occurs in more than 90% of patients. Lesions appear as brown-black macules less than 1 mm in size. It may be present at birth, in infancy, in early childhood, or later in life.^[4] It has a distinctive pattern of distribution, being confined only to certain areas. Intraoral sites include buccal and labial mucosa, hard palate, gingivae, and very rarely on the tongue.^[2,7] Extraoral sites include facial skin around mouth, lips, nose, eyes, hands, feet, and genital region.^[2,5] They fade from third decade onward, whereas intraoral lesions persist. They are not affected by solar exposure.^[5] These macules are benign and no malignant transformation has been described.^[8] Nails can demonstrate longitudinal melanonychia.^[9]

Polyps can develop at different ages at different parts of GI tract. A 70%–90% of patients will develop in small bowel. Extra GI sites include nose, uterus, respiratory tract, and gall bladder.^[2,3] Symptoms attributed to the polyps include recurrent episodes of abdominal pain, bleeding, and bowel obstruction due to intussusception.^[3,5] The time of commencement of abdominal symptoms can vary. They may present in the first year of life or at the age of 40 years.^[10]

The risk of death from GI cancer among these patients is 13- to 30-fold greater than the general population. The average age of cancer detection ranges from 38 to 50 years with 20–25 years of latency from the time of diagnosis. They may have association with other cancers, such as lung, breast, thyroid, gynecologic, basal cell, prostate, and pancreas.^[11]



Figure 2: Upper gastrointestinal endoscopy showing multiple polyps in the stomach

Medical management includes endoscopy of upper GI tract, colon, and pelvic examination every 2 years.^[4] Patients with polyps greater than 1.5 cm or smaller polyps with abdominal pain are advised to undergo laparotomy.^[3,6] Prophylactic colectomy is advocated for cases with numerous colonic polyps.^[6]

Dental management includes thorough review of history, extraoral and intraoral examination (presence and extension of mucocutaneous pigmentation, oral ulcers, and glossitis as an indicator for anemia or severe malabsorption), obtain complete blood count with differential and metabolic panel to evaluate hemoglobin, hematocrit, platelet count, and electrolytes. Postoperative considerations include examining for postoperative bleeding, appropriate wound healing, periodic evaluation to assess changes in oral mucosa, dentition, and/or existing pigmentation, and lastly emphasize the importance of proper oral hygiene and a balanced diet.^[12]

CONCLUSION

The present paper emphasizes the importance of oral physician in the diagnosis of concealed systemic disease based on orofacial pigmentation. As dermatologic finding can be among the first stigmata of this familial syndrome, and function as early indicator of an underlying predisposition to potentially grave malignancy, a keen appreciation of dermatologic and other associated clinical features remains crucial for early diagnosis and minimize the significant morbidity.

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REFERENCES

1. Peutz-Jeghers syndrome. Available from: <http://www.whonamedit.com> [homepage on the Internet]. 10th November 2010.
2. Lin TY. Peutz-Jeghers syndrome. A case report. *Br Dent J* 1967;19:278-81.
3. Human M, Strazar ZD, Oral R. Peutz-Jeghers syndrome. A case report. *Acta Dermatovenerol Alp Panonica Adriat* 2005;14:26-9.
4. Zhang XJ, Yang S. Pigmentary disorders in China. *Dermatol Clin* 2007;25:439-47.
5. Pereira CM, Coletta RD, Jorge J, Lopes MA. Peutz-Jeghers syndrome in a 14-year-old boy: Case report and review of the literature. *Int J Paediatr Dent* 2005;15:224-8.
6. Spigelman AD, Murday V, Phillips RK. Cancer and the Peutz-Jeghers syndrome. *Gut* 1989;30:1588-90.
7. Meleti M, Vescovi P, Mooi WJ, Waal IV. Pigmented lesions of the oral mucosa and perioral tissues: A flow-chart for the diagnosis and some recommendation for the management. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2008;105:606-16.
8. Neville BW, Damm DD, Allen CM, Bouquot JE. *Oral and maxillofacial pathology*. 2nd ed. Philadelphia: W.B. Saunders; 2002. p. 653-4.
9. Andre J, Lateur N. Pigmented nail disorders. *Dermatol Clin* 2006;24:329-39.
10. Cappell MS. Reducing the incidence and mortality of colon cancer: Mass screening and colonoscopic polypectomy. *Gastroenterol Clin North Am* 2008;37:129-60.
11. Su GH, Hruban RH, Bansal RK, Bova GS, Tang DJ, Shekher MC. Germline and somatic mutations of the STK11/LKB1 Peutz-Jeghers gene in Pancreatic and Biliary cancers. *Am J Pathol* 1999;154:1835-40.
12. Higham P, Alawi F, Stoopler ET. Medical management update: Peutz-Jeghers syndrome. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2010;109:5-11.

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