Coexistence of Familial Adenomatous Polyposis and Optic Disc Drusen in Two Patients From The Same Family

Aynı Aileden İki Hastada Familyal Adenomatöz Polipozis ve Optik Disk Drusen Birlikteliği

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ABSTRACT

Familial adenomatous polyposis (FAP) is an autosomal dominant disease characterised by the development of multiple adenomatous polyps throughout the colon. There may be other associated systemic abnormalities including extacolonic malignancy. Congenital hypertropy of the retinal pigment epitelium (CHRPE) is a common eye sign in patients with familial adenomatous polyposis. In the current report, we presented two brothers having FAP with optic disc drusen which might be incidental or associated ocular FAP manifestation.

Key Words: Familial adenomatous polyposis, Optic disc drusen.

ÖZ

Familyal adenomatöz polipozis (FAP) kolon boyunca çok sayıda adenomatöz polipin gelişimi ile karakterize otozomal dominant bir hastalıktır. Kolon dışı maligniteleri içeren sistemik anormalliklerle ilişkili olabilir. Retina pigment epitelinin konjenital hipertrofisi (CHRPE) familyal adenomatöz polipozis hastalarında en sık görülen göz bulgularından birisidir. Bizde mevcut çalışmada rastlantısal yada FAP'ın oküler bulgularıyla ilişki olabilecek optik disk druseni olan FAP tanılı iki kardeşi sunmayı amaçladık.

Anahtar kelimeler: Familyal adenomatöz polipozis, optik disk druseni

INTRODUCTION

Familial adenomatous polyposis (FAP) is a colon cancer predisposition in which hundreds to thousands of precancerous colonic polyp become evident at a mean age of 16 years (range, 7-36 years). FAP is a genetic disorder which accounts for 1% of colorectal cancer as etiology. Colorectal polyps can be associated with several extracolonic manifestations, including osteoma, fibroma, carcinoid tumour, carcinoma of the ampulla vater, carcinoma of the thyroid, hepatoblastoma and desmoid tumours. Congenital hypertrophy of the retinal pigment epithelium (CHPRE) is the most frequent extraintestinal manifestation associated with FAP.[1]

Optic disc drusen (ODD) are abnormal accumulation of calcified mitochondrial deposits in the optic nerve head. The reported incidense is 3,4 to 4,9 per 1000 individuals in clinical studies.[2] Often they are present in both eyes, but sometimes occur in only one eye. Although many patients are asymptomatic, there are numerous reports of progressive visual field loss from ODD.[3] ODD may be associated with systemic disease like pseudoxanthoma elasticum, ocular disease like retinitis pigmentosa and angioid streaks. Incidental presence of ODD is also presented with some systemic and ocular diseases.[4] To our knowledge, presence of ODD in FAP patients has not been reported and in the current study, we presented 2 cases of FAP patients with ODD.

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CASE REPORT

A 25-year-old male was referred to our clinic with diagnosis of FAP from general surgery clinic. (Fig.1a) His visual acuity and anterior segment examination were unremarkable. Fundus examination revealed blurring of the optic disc margins and elevation of the optic disc in both eyes. (Fig.1c,d) It was considered that these findings were consistent with ODD. The diagnosis of ODD was confirmed by computed tomography (CT), which yielded a calcified image of the optic nevre head.(Fig.1b) Patient reported that he has 8 siblings and 4 of them have the diagnosis of FAP. Other 3 siblings with FAP and 2 healthy siblings were also examined in our clinic. We determined ODD in one of them aging 30 years old and with the diagnosis of FAP and none of the patients had CHRPE in detailed peripheral fundus examination.(Fig. 2a,b,c,d)

DISCUSSION

FAP is caused by mutations in the APC gene. The position of the mutation along the coding sequence of the APC gene determines whether CHRPE is present or absent and determines the severity of colonic disease. CHRPE associated with FAP is observed when the mutation is located in a region between axons 9 and 15.[5] CHRPE is a common eye sign in patient with FAP. First described by Blair and Trempe.[6] CHRPE lesions of the FAP are multiple, bilateral and observed in patients who have inherited the abnormal gene. CHRPE is the first extracolonic manifestation of FAP in which the phenotype-genotype correlation is clearly shown.[5] The prevelance of CHRPE in the normal population is between 1.2% to 4.4% and present in 70% of patients with FAP.[5,7] However, we did not determine CHRPE lesions in our patients. Patients may develop extra-intestinal manifestations such as sebaceous cysts (51%), desmoids tumours (26%), and osteomas, lipomas (Gardner's syndrome) and extra-intestinal malignancies (hepatomas, retinoblastomas and brain tumours) in lesser proportions. [8]

Almost all patients develop colorectal cancer from adenomatous polyps unless detected early and managed by prophylactic removal of the colon and rectum. Therefore, early diagnosis is paramount. Several studies have been conducted to determine the value of CHRPE as a predictive marker for the development of FAP. Nusliha A et al reported 74% sensitivity, Chen CS et al reported 56% sensitivity in detecting FAP with CHRPE while none of the subjects with hereditary nonpolyposis colon cancer in their study had retinal lesions.[9,10] All retinal lesions present in FAP patients

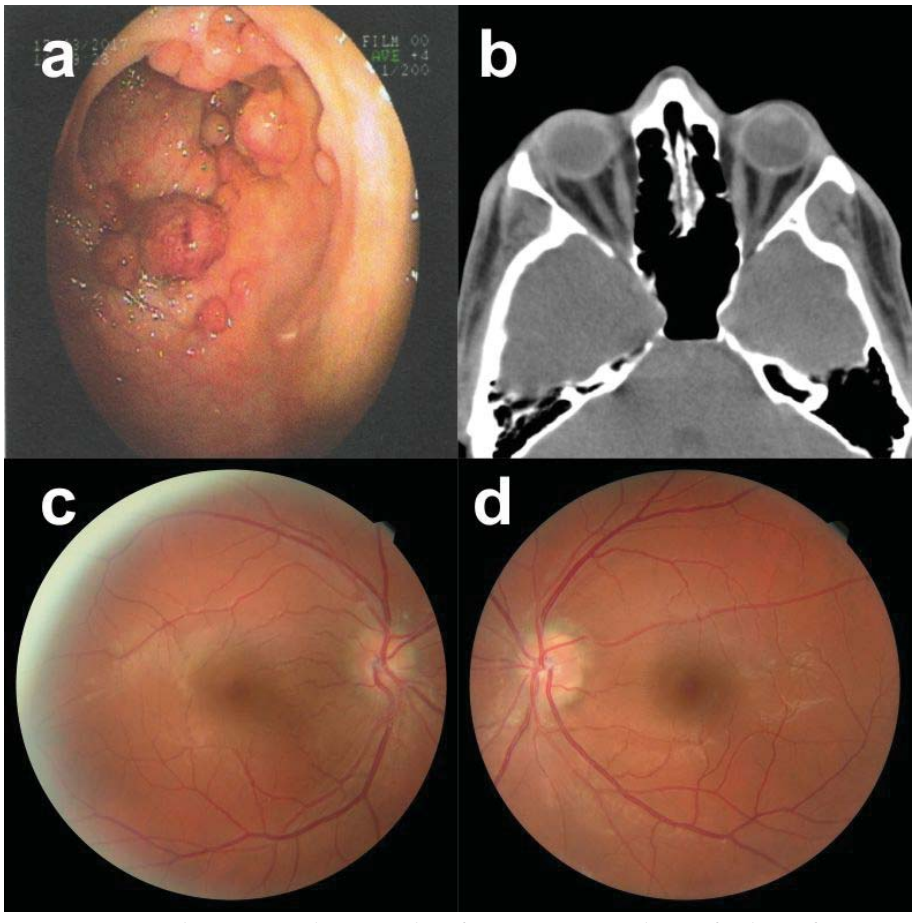

Figure 1. a) *Colonoscopy photographs of case 1,* **b)** *Axial CT of orbits of case 1, and* **c. d)** *Color fundus photographs of case 1.*

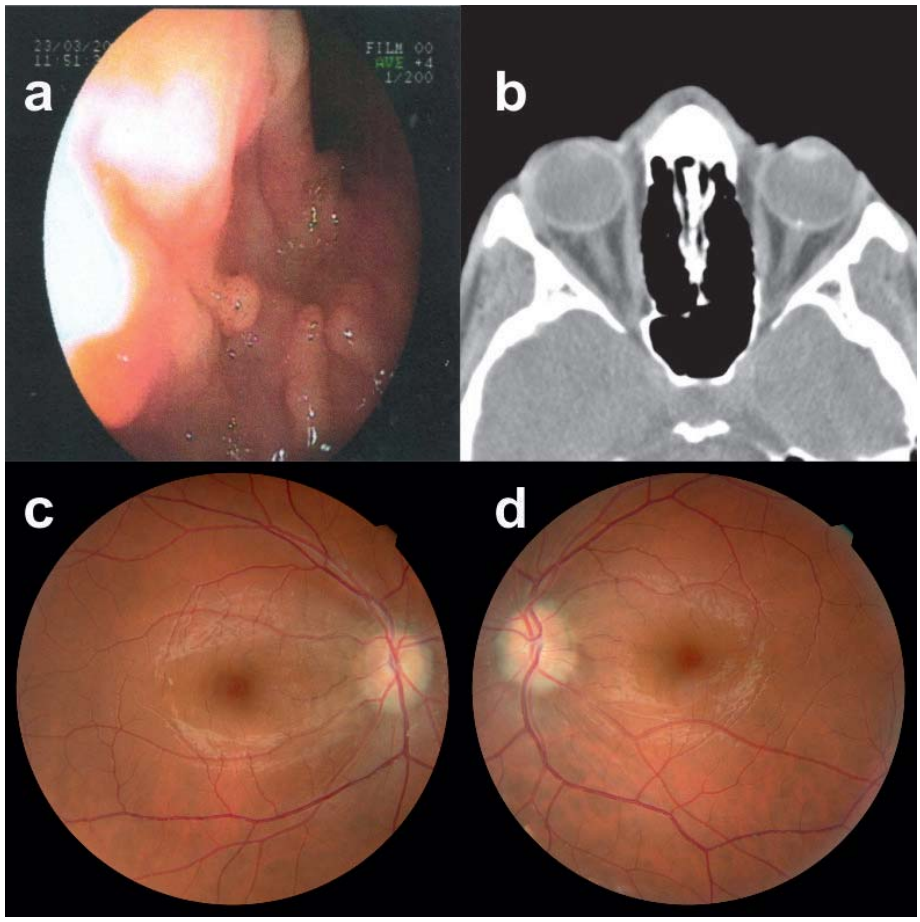

Figure 2. a) *Colonoscopy photographs of case 2,* **b)** *Axial CT of orbits of case 2 and* **c, d)** *Color fundus photographs of case 2.*

may not be CHRPE. These may be hamartomatous lesions which will be difficult to differentiate without special imaging techniques.[10] We have not determine report of any other retinal lesion association of FAP other than CHRPE in the literature.

ODD are often considered congenital and several mechanisms have been proposed explaining their formation. An accepted theory is that small scleral canal may cause axonal distress due to physical limitations of a large number of optic nevre axons travelling through small space. This crowding effect may limit axonal transport capacity of axons, leading to axon degeneration and ODD formation. [4] However, Floyd et al measured scleral canal diameter using optical coherence tomography and they reported there was no significant difference between patients with ODD and control group.[11] A second theory of drusen formation is that ODD arise due to abnormal vasculature of the optic disc causing axonal ischaemia distress and impaired axonal metabolism, resulting in drusen formation. [4] ODD may be superficial and deeply localized. While superficial drusen can be diagnosed easily during fundus examination, detecting buried drusen requires the use of additional imaging methods such as B-scan ultrasonography, computerized tomography and fundus autofluorescence .[12] İn our cases, the diagnosis of ODD was confirmed by computerized tomography.

ODD may be isolated or dominantly inherited. Therefore, our patients might also have inherited ODD or taking in consideration about the inheritence of FAP there may be some association between ODD and FAP.

In conclusion, FAP patients may present with CHRPE and there is no other reported fundus lesions in the literature. Our cases are the first reported FAP patients with ODD and this might be an associated ocular FAP manifestation. Identified ODD in the current study might be incidental but further research is required to determine the ocular lesions like ODD in patients with FAP.

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