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## Lower Back Pain, Blamed on Pregnancy, Ended Up with Worsening of Vision: A Case Report

Katarzyna Baltaziak<sup>1</sup>, Maria Malaczek<sup>1</sup>, Jędrzej Tkaczyk<sup>2</sup>, Klaudia Brożyna<sup>2</sup>,  
Krystian Ciechański<sup>2</sup>, Dominika Nowakowska<sup>3</sup>, Robert Rejdak<sup>3</sup>

<sup>1</sup>Student's Research Group at the Clinical Department of Ophthalmology, Medical University of Lublin

<sup>2</sup>Student's Research Group at the Clinical Department of Vascular Surgery and Angiology, Medical University of Lublin

<sup>3</sup>Clinical Department of General Ophthalmology, Medical University of Lublin

### Abstract

A 51 year-old female was presented with worsening of vision in her right eye; left eye similar problem about one year earlier. Each time responded to methylprednisolone sodium succinate and her discharge diagnosis was the optic nerve neuropathy. The past medical history (PMHx) was remarkable for twenty years of hypertension, anemia of chronic disease and currently on hemodialysis due to her end stage renal disease (ESRD). The most notable part of PMHx was the sacral area pain since her pregnancy at age 28 which had never resolved until the radiational therapy for aneurysmal bone cyst (ABC) which was found in CT imaging.

Since the lower back pain is a frequent complain in pregnancy and after deliveries, the complains were neglected until the tumor became unresectable. The radiation therapy produced the shrinkage of ABC, but caused renal injury leading to HTN and ESRD. At age approximately 48, the patient started experiencing worsening of her vision in her left eye, most likely in result of poorly controlled HTN while maintaining her normal vision in her right eye. As stated in the report, the patient was treated in our clinic for worsening of vision in her left eye followed by her vision worsening in her right eye within one year. During the most recent hospitalization a

diagnosis of bilateral papilledema we established and left eye's optic nerve head atrophy was confirmed using both OCT and MR imaging. We believe that ignoring common complaints can lead to uncommon complications causing the most severe consequences for our patients.

## **Keywords**

Lower back pain, aneurysmal bone cyst, pregnancy, hypertension, worsening of vision

## **Introduction**

Aneurysmal bone cyst (ABC) is rare, benign vascular lesion, and considered secondary to certain pathological bone lesions [1]. ABC represents approximately 1.4% of all bone tumors [2]. These lesions occur most commonly in patients under 20 years old of both genders [2]. Radiographs may reveal frequently an eccentric, lytic lesion typically with an expanded, remodeled "blown-out" or "ballooned" bony contour of the affected bone, with a delicate trabeculated appearance. Fluid-filled spaces are common and may be seen on CT scans and MR images [1]. Due to infrequent presentation and rare sacral location, healthcare providers do not associate lower back pain with ABC. However, pain produced in sacral area could be concerning in absence of lumbar area pain and considering steadiness of the pain regardless of motion and position.

Papilledema occurs when raised intracranial pressure (ICP) is transmitted to the optic nerve sheath. The raised pressure mechanically disrupts axoplasmic flow within the nerve. Obstruction of intra-axonal fluid results in swelling of the axons and leakage of water, protein, and other cellular contents into the extracellular space of the optic disc giving rise to optic disc edema [3,4]. Venous obstruction and dilation, nerve fiber ischemia, and vascular telangiectasias are secondary phenomena. Differential diagnosis of papilledema is brought and is including intracranial mass lesions (e.g., tumor, hematoma), cerebral edema (such as in acute hypoxic ischemic encephalopathy, large cerebral infarction, severe traumatic brain injury), increased cerebrospinal fluid (CSF) production, e.g., choroid plexus papilloma, decreased CSF absorption (e.g., arachnoid granulation adhesions after bacterial meningitis), obstructive hydrocephalus, obstruction of venous outflow (e.g., venous sinus thrombosis, jugular vein compression, neck surgery), and idiopathic intracranial hypertension (pseudotumor cerebri). Extracranial tumors are rarely associated with increased ICP and even less often found to be directly related to any vision problem.

In this Case Report, we presented a patient with over 20 years of medical history leading to visual worsening due to renal insufficiency and failure and renal hypertension. The problems however started with ABC which unfortunately had never been found at resectional stage and radiational therapy produced the sequel.

## **Case Report**

A 51 year-old Caucasian female, is presented at our Ophthalmology Clinic with worsening of vision in her right eye. The ophthalmologic examination revealed an edema in the right optic nerve (papilledema). Neurologic consultation confirmed no neurologic causes of papilledema and the patient was admitted to the floor for further evaluation and the treatment with

Solumedrol 500 mg BID over the three consecutive days for a total dose of 3 grams of methylprednisolone sodium succinate. In result of the administered treatment the patient recovered her vision in the right eye and the vision improved.

The patient was already known to our clinic, because she was presented with a similar complains and reported worsening of vision in her left eye, approximately a year earlier. At that time the same therapy including Solumedrol 500 mg BID over three days (for a total dose of 3 grams of methylprednisolone sodium succinate) was used and the recovery of patient's vision in her left eye was achieved.

Past medical history (PMHx) of the patient is remarkable for twenty years of hypertension treated recently with metoprolol extended release (Betaloc ZOK 50 mg QD), end stage renal disease (ESRD) on hemodialysis three times per week for the past ten years, and anemia of chronic disease treated with monthly erythropoietin injections.

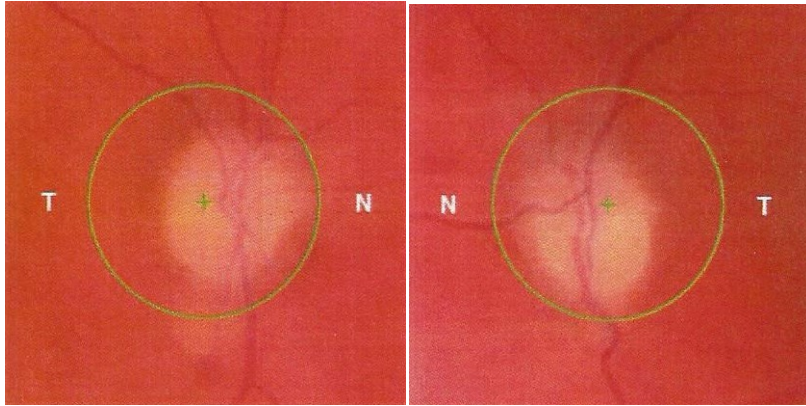
The most remarkable part of the patient's PMHx was the finding that at age 28, when pregnant, she complained about the lower back pain in her sacral (not lumbar) area, but her treating physician believed that the pain and discomfort could be related to her pregnancy. She was consulted by OB/GYN multiple times during her pregnancy and after delivery, but each time her examination was unremarkable. She was assured by her OB/GYN that such pain can continue after the labor and delivery for some time. However, because the pain had continued and never resolved she was seen by Orthopedist who ordered X-rays and CT of the vertebral column. The imaging revealed a large, unresectable tumor in the sacral area. The radiation therapy was considered the most appropriate treatment at that time and the shrinkage of tumor was achieved. Unfortunately, the radiation produced renal injury and the patient developed hypertension (HTN) and had to be treated with renal dialysis. Twenty years later, at approximately age 48, the patient started experiencing worsening of her vision in her left eye, most likely in result of poorly controlled HTN while maintaining her normal vision in her right eye. As stated in the report, the patient was treated in our clinic for worsening of vision in her left eye followed by her vision worsening in her right eye within one year.

During the most recent hospitalization in addition to bilateral papilledema we found left eye's optic nerve head paleness which was considered a sign found in patients with visual loss due to pathology of the optic nerve or retinal ganglion cells, and the evidence of atrophy.

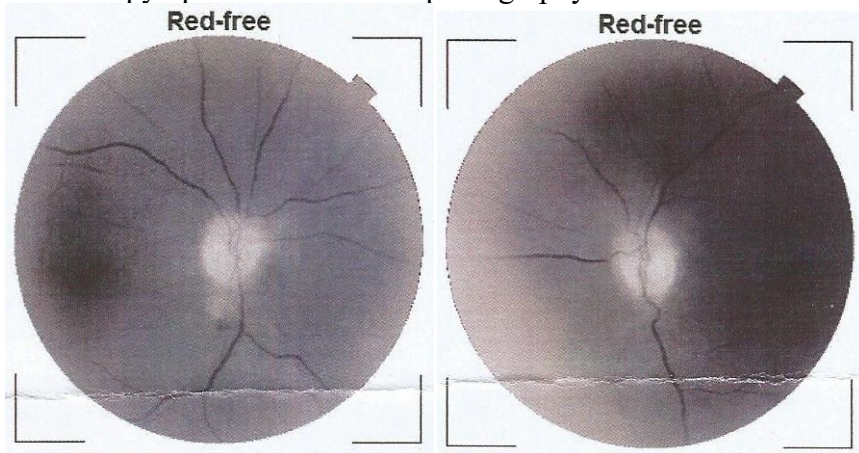
For diagnostic purposes and to review differential diagnosis we examined visual fields, used OCT and MR imaging. Magnetic resonance imaging revealed vascular changes with reduced perfusion.

## **Diagnostic Investigation**

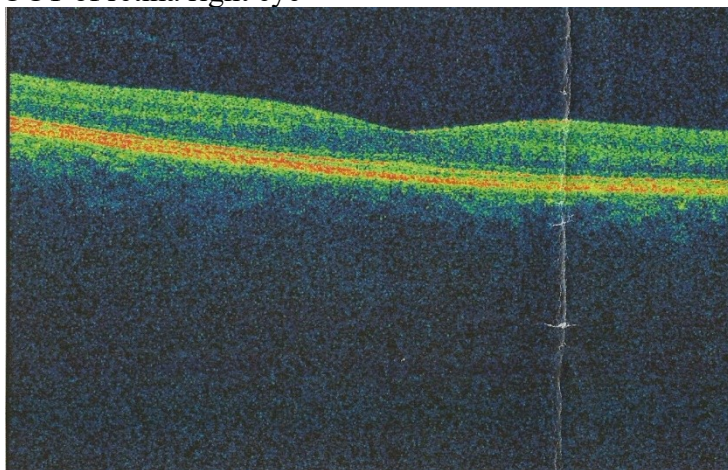
Fundoscopy optic nerve color photograpy



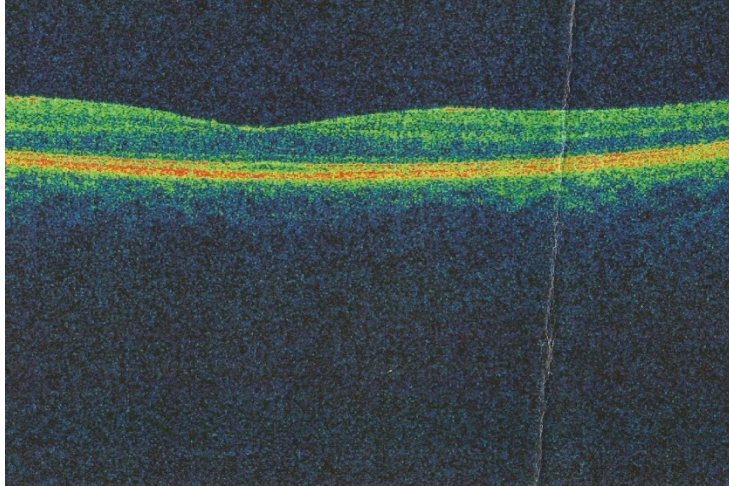
Fundoscopy optic nerve red-free photography



OCT of retina right eye



OCT of retina left eye



## **Discussion**

### Visual Symptoms

While rarely the presenting symptom, visual symptoms are common in patients with papilledema. These are typically visual obscurations that clear completely, are often unilateral, and typically very brief and may occur spontaneously or with changes in position [5]. It is unusual for patients to have persistent deficits of visual acuity or field loss until quite late in the course. Untreated, chronic papilledema can lead to progressive visual field loss in the form of peripheral field contraction, nerve fiber bundle defects, and even blindness [6,7]. The field loss often mimics the field loss of glaucoma.

### Fundoscopy Findings

Papilledema evolve over time and ophthalmologists often characterize papilledema into stages: early, fully developed, and chronic or late. We photographed patients' fundi in order to follow changes in the examination and monitor response to treatment. Another approach could be to use a grading scheme, but some of these have not been well validated or universally accepted.

The optic cup is retained when the papilledema is mild. However, splinter hemorrhages in the nerve fiber layer, at or beyond the disc margin, may be seen early. In chronic papilledema the central cup remains obliterated. Hemorrhagic and exudative components resolve. The nerve now appears flat with irregular margins; nerve fiber attrition leads to disc pallor as we observed in the Case Report patient as well as some loss of visual field at this stage.

### Neuroimaging

Considering findings suggestive of papilledema, diagnostic evaluation proceeded expeditiously including neurologic consult followed by neuroimaging of the brain. MRI with gadolinium

contrast was preferred, but CT scan could be ordered initially if access to MRI would be delayed. Rarely, increased ICP may arise from spinal lesions; therefore, if this diagnosis is suggested by clinical signs or symptoms (back or neck pain, myelopathic signs, abnormal spinal fluid) an MRI of the spine should be ordered as well, but we had no such suspicion.

### Visual field testing

Formal visual field testing with perimetry was very useful in the detection of subclinical visual field abnormalities and quantifying changes over time especially that the patients was our returning one. Visual field testing was mandatory for us as we were following the progress of the visual sequelae of papilledema and monitoring response to treatment already happening in the second eye within a year. The size of the blind spot was an indirect measure of the degree of disc edema. Measurement in an individual patient must have been done under exactly the same refractive conditions each time, as blind spot size is sensitive to refractive error. Constrictions in field perimetry and development of sector field defects were signs of impending serious visual loss.

### Optical coherence tomography

OCT is readily available in our clinic and became useful to monitor the swelling of the nerve and also to clarify the effect upon and changes within the surrounding retina.

### **Conclusion**

We have described a case of frequently neglected complains of the lower back pain during the pregnancy and post partum, which over the years of inappropriate follow up or use of inadequate diagnostic techniques initially, produced a sequel of major worsening of vision and overall decline of health.

Our diagnosis was bilateral optic nerve neuropathy, but we believe that unfortunate ignoring of the common complaints led to uncommon but expected complications.

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