Visual loss after coronary artery bypass surgery

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ABSTRACT

Anterior ischemic optic neuropathy is caused by microvascular occlusion of the prelaminar or laminar portion of the optic nerve head. The main types are arteritic, non-arteritic, and autoimmune. Few cases were reported following coronary artery bypass surgery. A 63-year-old man, who is both diabetic and hypertensive, underwent coronary artery bypass graft complicated postoperatively by sudden visual loss in his right eye. The diagnosis was non-arteritic anterior ischemic optic neuropathy. Possible predisposing factors were crowded disc and internal carotid artery stenosis.

Keywords: Anterior ischemic optic neuropathy, coronary bypass surgery.

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and it showed hypo-perfusion in right optic disc in choroidal phase. Venous phase showed leakage in the lower part of optic disc (Figure 2), and normal left optic disc (Figure 3), diagnosis of non-arteritic anterior ischemic optic neuropathy was established.

Discussion. This is a case of right non-arteritic anterior ischemic optic neuropathy post coronary artery bypass surgery; patient had the risk factors of hypertension, carotid artery stenosis, and crowded disc (disc at risk).

Three hundred and twelve patients with coronary artery bypass grafts were prospectively studied in (1985), for various neurological complications. Such complications were found in 61% of the patients and ophthalmic complications were observed in 25% of cases, 54 patients (17%) had new cotton-wool spots, and about half of these reported blurred vision. In 8 patients, one or more retinal emboli were observed postoperatively, half of them were symptomatic. In 8 patients, a visual field defect developed, one of which was a transient hemianopia. In 14 patients, at least 2 lines of reading acuity were lost without clear cause on clinical examination. However, no cases of Anterior Ischemic Optic Neuropathy (AION) were detected in this series.

In 1987, Alpert et al described 3 patients with ischemic optic neuropathy following coronary bypass surgery. While in that same year Tice reported 3 patients, who underwent coronary artery bypass surgery, and subsequently had a fall in hematocrit

Figure 1 - Visual fields at presentation showing right altitudinal field defect.

Figure 2 - Venous phase fluorescein angiogram of the right eye showing leakage in the lower part of the optic disc.

Figure 3 - Arterio-venous phase fluorescein angiogram of the (normal vision) left eye.
value (or hypotension postoperatively), which preceded the development of AION.4

Two cases were reported by Larkin et al of bilateral AION resulting in severe visual impairment complicating otherwise successful coronary artery bypass surgery.5

In 1998 a case of visual loss due to Anterior Ischemic Optic Neuropathy following coronary bypass surgery was reported by Moster, of which possible predisposing factors were hypotension, anemia, a crowded disc, and internal carotid stenosis.6

In conclusion, anterior ischemic optic neuropathy is the second commonest optic neuropathy of adults, the first being glaucoma. Typically it is seen in isolation, in a small and crowded disc (the disk at risk) without other systemic manifestations, although it is commonly associated with hypertension and diabetes mellitus.6

Like other neurological complications of cardiopulmonary bypass, AION may occur in routine, seemingly uncomplicated operations, and can cause some of the most devastating long-term disability.5

References