

TRANSIENT CORTICAL BLINDNESS: A MUST KNOW COMPLICATION OF CORONARY ANGIOGRAPHY

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Abstract

INTRODUCTION: This is a case of transient visual loss following trans-femoral coronary angiography in a 44 year- old man, which lasted for 2 days.

CASE REPORT: Ophthalmologic, neurological and radiological studies using physical exam and brain MRI showed no pathological finding.

CONCLUSION: Visual loss resolved completely without any sequel in 2 days. The leakage of contrast agent into occipital area of the brain could possibly be the cause.

Keywords: Complication of coronary angiography, Transient Cortical Blindness

ARYA Atherosclerosis Journal 2009, 5(1): 49-50

Date of submission: 29 Jun 2009, *Date of acceptance:* 25 April 2009

Case Report

A 44 year -old man was admitted to a cardiology clinic for a diagnostic coronary angiography. He was a diabetic worker who had no previous history of ischemic heart disease, until recently that he started experiencing typical chest pains suspected to be unstable angina. The patient had type A personality with anxiety and some psychological problems.

His coronary artery angiography was performed from right femoral artery with 6F left and right Judkins catheters and a 6F pigtail with Seldinger method. The angiography showed minimal lesion at the proximal portion of left anterior descending (LAD) coronary artery and the result of the test was otherwise within normal limits.

The procedure was completed, using a total amount of 120 ml of Ultravist (Iopromide) as contrast agent without any unexpected event.

After the removal of femoral artery sheath, the patient complained of generalized weakness and blurred vision. Vital signs were checked and general physical examination was done, which were stable and normal. He was transferred to post-angiography ward, where he gradually lost his vision bilaterally. He also had several episodes of vomiting which did not occur later. All cranial, sensory and motor nerves were proved to be normal after a complete neurological exam was performed. The pupils were symmetric, normal size and reactive to light.

On the following day, the patient was visited by an

ophthalmologist and a neurologist, who ordered a brain MRI without contrast for the patient. The result of his latter visits including brain MRI revealed no abnormal finding.

Over the next two days, following the angiography his blindness fully recovered and he was discharged home on the 3rd day with no residual blindness.

Discussion

Iopromide is a non-ionic, water-soluble, tri-iodinated, X-Ray contrast agent for intravascular administration.¹ Although rare, in coronary angiography cortical blindness is a well-documented complication of different kinds of angiography.²⁻⁴ It was first reported in coronary angiography in 1970.⁵ For this kind of blindness which may appear during the procedure or shortly after that, several mechanisms were proposed including: posterior cerebral artery embolism, aortic arch dissection, hypoventilation, hypercarbia and contrast induced hypoventilation.⁶ But results of brain CT scans, which has been taken shortly after visual loss, revealed enhancement in occipital area in several instances which proposed and supported another theory for this complication.

The last theory proposes the responsible mechanism for this complication to be a direct idiosyncratic neurotoxicity of contrast agent as it leaks to brain parenchyma due to blood brain barrier disruption.^{7,8} Endothelial cell shrinkage and tight junction opening is suggested to be the causal mechanism of contrast material entry into the brain parenchyma.⁹ Why this happens to occipital area? Not clear yet, but it might

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be due to an innate vulnerability or prolong supine position of the patient.

Although in this case brain imaging (CT scan or MRI) was not performed timely but it could have shown high attenuation signal within the subarachnoid space that can mimic subarachnoid hemorrhage.⁷ In a 24 to 48 hour follow up CT scan or MRI, most of the contrast will be disappeared, as in our case, and the suspected diagnosis could be confirmed.

Microembolization is another reported complication in patients undergoing cardiac catheterization, however this is not accompanied by contrast enhancement and is usually silent or associated with focal neurological signs.¹⁰

Conclusion

Transient cortical blindness is a rare but documented complication of coronary angiography with no completely understood mechanism. Neurologist consultation and imaging (CT or MRI) are indicated as soon as possible to confirm the diagnosis. The clinical course appears to be favorable without therapy, following contrast excretion and blood brain barrier recovery in 2 to 3 days.

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