Case Report

Acute Monocular Blindness after Transurethral Resection of the Prostate

Pawanee Srilar MD*, Vanda Pattaratuma MD**

** Department of Surgery, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*
*** Department of Anesthesiology, Faculty of Medicine, Srinakharinwirot University, Nakhon Nayok, Thailand*

Acute monocular blindness is a rare postoperative complication. This article reports a case of 65-years-old patient who underwent transurethral resection of the prostate (TURP) under spinal anesthesia. After the operation, he developed an acute visual loss of left eye. Eye examination showed negative response for light perception of the left eye. Other neurological examinations were unremarkable. CT scan, MRI and MRA of the brain were normal. He was treated as acute ischemic stroke, and then got full recovery.

Keywords: *Monocular blindness, Perioperative stroke, TURP*

J Med Assoc Thai 2017; 100 (Suppl. 8): S236-S240
Full text. e-Journal: *http://www.jmatonline.com*

In general, an acute monocular blindness is a rare postoperative complication. From previous report, blindness developed after TURP is caused by excess of ammonia from using glycine solution as an irrigation fluid in TURP procedure. This article reports a 65-years-old man who had acute vision loss of left eye after TURP with sterile water irrigation.

Case Report

A 65-years-old Thai man who had a history of lower urinary tract symptoms was diagnosed as benign prostatic hyperplasia (BPH) for 2 years and treated with doxazosin 2 mg once daily before bedtime. His overall symptoms were improved. However, one month before, he developed an acute urinary retention. He was treated by insertion of urethral catheter for one week and adjust doxazosin dose to 4 mg per day. After urethral catheter was removed, he could void spontaneously without straining, and was discharged from hospital with next month appointment for clinical follow-up. Five days before the appointment, he developed the second episode of urinary retention. After urethral catheter was inserted, he was scheduled for TURP due to refractory urinary retention. He was admitted for preoperative evaluation and preparation. Doxazosin which was prescribed for his urinary symptoms was discontinued. During admission, his blood pressure was around 130 to 150 mmHg for systolic pressure and 80 to 90 mmHg for diastolic pressure. Compared to previous medical records, his blood pressure baseline was 120 to 140 mmHg for systolic pressure and 80 to 90 mmHg for diastolic pressure; there was no significant change and it was assumed that rising blood pressure was likely from having stopped use of doxazosin, an alpha-adrenergic blocker. For this reason, doctors did not prescribe him an antihypertensive drug. Besides doxazosin, he regularly used Gabapentin (600 mg) for his chronic back pain without neurological effect from spinal stenosis. The patient had coexisting disease of dyslipidemia which was evaluated and reviewed through recent blood test, two months before admission. It showed that his lipid profile was well controlled by diet modification. He used to smoke one pack per day for 30 years but had quit for 10 years. He did not use any drug substances and had no previous history of anesthesia. General physical and systemic examinations were unremarkable. Preoperative laboratory results were normal and others preoperative routine investigations were also within normal limit.

On the day of the surgery, no premedication was given. His initial blood pressure was 180/100 mmHg and reduced to 150/90 mmHg after 10 to 15 minutes rest. His pulse was 80 beats per minute and electrocardiogram (ECG) showed normal sinus rhythm. Spinal anesthesia was performed with 3.4 ml of 0.5% Heavy Marcaine at the 4^{th} to 5^{th} Lumbar level with median approach technique in single attempted. An

Correspondence to:
Srilar P, Department of Surgery, Faculty of Medicine, Srinakharinwirot University, 62 Moo 7, Ongkharak, Nakhon Nayok 26120, Thailand.
Phone: +66-37-395085, Mobile: +66-98-9654228
E-mail: spawanee@gmail.com

anesthetic level reached to the 8th Thoracic level. The patient's blood pressure declined to 110 to 120 mmHg for systolic pressure and 80 to 90 mmHg for diastolic pressure without any hypotensive symptoms.

During operation, the patient complained that he felt uncomfortable so anesthesiologist gave him 1 mg of Midazolam, 50 micrograms of fentanyl and oxygen cannula 3 liters per minute for sedation. TURP was performed using totally 35 liters of sterile water irrigation. The operating time was 45 minutes and total tissue removal was about 50 grams. There was 100 ml of estimated blood loss throughout the operation. The patient received 650 ml Acetar Acetate intravenously in total. After the operation had finished, the patient complained that he felt pain at the operative site and his blood pressure rose to 160/90 mmHg. However, his pulse was still at 80 to 90 beats per minute. The anesthesiologist gave him 50 micrograms of Fentanyl for treating pain before he left the operating room.

At the recovery room, his blood pressure was rising to 190/110 mmHg and pulse rate was 65 beats per minute. The monitoring ECG remained normal sinus rhythm throughout the time. Fifteen minutes later, the patient complained that he could not see anything from his left eye. He had neither headache nor any aura, but vomited twice. His initial physical examination showed that his left eyes had negative response for light perception but other neurological tests were normal. An emergency ophthalmologist and neurologist were consulted. During evaluation period, his left visual acuity (VA) was recovered to normal but he complained that he could not speak clearly due to a mildly spastic tongue. His systolic blood pressure remained at 160 to 180 mmHg and 90 to 100 mmHg of diastolic pressure throughout the recovery room time without any antihypertensive drugs given. Initial blood test, blood sugar was 162 mg/dL and blood for electrolyte showed Na^+ 135 $mEqL^{-1}$, K^+ 3.9 $mEqL^{-1}$, Cl^- 105 $mEqL^{-1}$ and HCO_3^- 25 $mEqL^{-1}$, all in normal range. The initial diagnosis was possible Amaurosis Fugax likely caused from acute stroke due to concomitant dysarthria.

Normal saline solution was given intravenously for restoring blood flow and replacing serum sodium. Non-contrast brain CT scan was performed after all vital signs were stable to rule out hemorrhagic stroke. The study revealed no intracerebral hemorrhage so the patient had prescribed for Clopidogrel 75 mg per oral. The patient was treated for transient ischemic stroke (TIA), but an embolic phenomena was also cautioned. The consultant neurologist had requested a Doppler ultrasonography of carotid vessels and echocardiography to rule out embolic cause even though there was neither evidence of atrial fibrillation nor carotid bruit from physical examinations. MRI and MRA brain were studied to confirm the diagnosis and provided more details about nature of his stroke. The results were normal. Bleeding risk was monitored while giving Clopidogrel and there were no serious sequelae. Daily physical and neurological examinations were normal. Urethral catheter removed was delayed until 7 days after the operation due to awareness of operative site bleeding from early use of antiplatelet postoperatively. After that, the patient could pass urine easily and there was no frank blood in urine. He returned to home full recovered.

Discussion

Perioperative visual loss is rare. The overall incidence rate in anesthetics was less than 0.001%[1]. The high risk procedures for perioperative visual loss were spine and carotid surgery[2]. Possible causes of transient monocular blindness are embolic: central retinal artery occlusion (CRAO) and retinal micro-emboli, hemodynamic: retinal ischemia, ocular, neurologic and idiopathic[3]. In detail, CRAO is the most common result of improper patient position and external compression of the eye in perioperative period[4]. Retinal microemboli are common during open heart surgery[5]. Hypotension is a rare cause of retinal ischemia[6].

Transient blindness after TURP has been reported but all are associated with TURP syndrome which using glycine as an irrigation fluid[7-9]. When glycine is used, cardiovascular and central nervous systems will have abnormalities that occasionally include fixed and dilated pupils, transient blindness, nausea, vomiting and muscular in coordination[10,11]. In this case, urologist used sterile water as the irrigation fluid. The patient had nausea, vomiting and acute visual loss that may occur from hyponatremia in TURP syndrome. However, this patient had only left eye blindness thus TURP syndrome was ruled out because it should be systemic and had binocular blindness. In this case, acute stroke was the most likely cause of monocular blindness even though the all brain images were normal. About the negative imaging result, there were some limitations of CT and MRI in stroke. In early ischemic change, there is an intracellular edema that caused loss of differentiation between gray and white matter and effacement of the cortical sulci, which was hardly detected by non-radiologist. Due to this fact, even though non-contrast CT brain might not clearly

shows signs of ischemic stroke, most importantly, it will be exclude hemorrhagic stroke which is entirely different in management. Conventional brain MRI study is good at detecting vasogenic edema which is present at least 24 hours after stroke; hence it will be more useful in subacute stroke. On the other hand, MRI combined with angiography, MRA, is a good tool to evaluate vascular structure and embolic phenomena in acute strokes[12,13].

Perioperative stroke after non-cardiac and non-neurosurgical procedures is more common than generally acknowledged. It is reported that 0.05 to 7% of these patients had an acute stroke perioperatively[14]. According to the large demographic research about complication from TURP which gathered more than 16,000 patients since 1979 to 2005, there was no report about stroke after TURP[15]. Nevertheless in 2016, there is one case report about perioperative stroke following TURP[16]. This patient had history of hypertension for 12 years and preoperative ECG showed a left bundle branch block pattern. The transthoracic echocardiogram revealed left ventricular hypertrophy with an ejection fraction of 58%. He had developed severe hypertension and neurological deterioration two hours after procedure. Finally, he had weakness of his left side body which is a typical clinical presentation of stroke.

Although, there was one study about complications after stopping or not stopping anticoagulant before TURP. This study shows that there were 2 patients out of 305 who had cerebrovascular accident (CVA) or a transient ischemic attack[17]. In conclusion, the incidence of stroke is less than 0.01% in the patients who had received anticoagulant before TURP.

The potential risk factor of the perioperative stroke[18] in this patient was a history of smoking. He also had high blood pressure when he arrived at the operating room without history of previous hypertension. At first, the anesthesiologist thought that he was anxious because after he rested, blood pressure decreased. However, hypertensive urgency is one of differential diagnosis because theoretically long term regular use of an alpha blocker for BPH could be obscure preexisting hypertension in this patient. Besides, he had stopped an alpha blocker for his urinary symptoms a week before the operation and his blood pressure was slightly increased. A prospective, randomized multicenter clinical trial of general anesthesia in 17,201 patients found that perioperative hypertension was associated with perioperative bradycardia, tachycardia and hypertension[19]. Patients with preoperative hypertension showed that they have a high risk for postoperative complications more than normal[20]. At this point, this patient should be concerned that he had preexisting undiagnosed hypertension and needed to control blood pressure properly before operation.

Another possible factor that caused acute ischemic stroke in this patient is a sudden decrease of blood pressure after spinal anesthesia, even though there was no significant drop of the patient's blood pressure during procedure, which was less than 20% from baseline[6]. However, if it is considered that he had undiagnosed hypertension obscured by regular use of doxazosin, it should be concern that he was in hypoperfusion state right after spinal anesthesia.

For treatment, patients who have an acute TIA or stroke should be placed on appropriate antiplatelet therapy and risk factors such as hypertension should be dealt promptly[21]. This is challenging because both benefits and risks of bleeding after surgery had to be considered. In this case, thrombolytic agent was contraindicated because of the bleeding in the urinary tract after surgery. After comparing between operative site bleeding and sequelae of acute stroke, this patient has received an antiplatelet, Aspirin 81 mg daily, and fully recovered.

Conclusion

As a result of high rate perioperative and postoperative complication, preoperative hypertension has to be considered in reevaluate or postpone operation in elective surgery. An uncommon clinical presentation, visual loss, should be seen as a possibility of perioperative stroke. Risk modifications and antiplatelet have a role in treatment.

What is already known on this topic?

This is the first case report about blindness or stroke without previous history of hypertension, cardiovascular disease, stroke or TIA and coexisting atrial fibrillation which receiving anticoagulants after TURP.

What this study adds?

This is the first report that presented atypical presentation of acute stroke after TURP.

Acknowledgements

The authors are grateful to the patient for all his help.

Potential conflict of interest

None.

References

1. Warner ME, Warner MA, Garrity JA, MacKenzie RA, Warner DO. The frequency of perioperative vision loss. Anesth Analg 2001; 93: 1417-21, table.
2. Shen Y, Drum M, Roth S. The prevalence of perioperative visual loss in the United States: a 10-year study from 1996 to 2005 of spinal, orthopedic, cardiac, and general surgery. Anesth Analg 2009; 109: 1534-45.
3. The Amaurosis Fugax Study Group. Current management of amaurosis fugax. Stroke 1990; 21: 201-8.
4. Roth S. Perioperative visual loss: what do we know, what can we do? Br J Anaesth 2009; 103 (Suppl 1): i31-40.
5. Blauth CI, Arnold JV, Schulenberg WE, McCartney AC, Taylor KM. Cerebral microembolism during cardiopulmonary bypass. Retinal microvascular studies in vivo with fluorescein angiography. J Thorac Cardiovasc Surg 1988; 95: 668-76.
6. Little DM Jr. Induced hypotension during anesthesia and surgery. Anesthesiology 1955; 16: 320-32.
7. Bartoloni A, Gottin L, Ficarra V, Capotosto C, Malossini G, Tallarigo C, et al. The TURP syndrome: importance of expiratory ethanol measurement and high serum levels of glycine. Arch Esp Urol 2001; 54: 480-7.
8. Khan-Ghori SN, Khalaf MM, Khan RK, Bakhameez HS. Loss of vision: a manifestation of TURP syndrome. A case report. Middle East J Anaesthesiol 1998; 14: 441-9.
9. Virseda Rodriguez JA, Hernandez M, I, Segura MM. Transitory blindness after transurethral resection of the prostate. Arch Esp Urol 1997; 50: 523-5.
10. Fahey JL. Toxicity and blood ammonia rise resulting from intravenous amino acid administration in man: the protective effect of l-arginine. J Clin Invest 1957; 36: 1647-55.
11. Doolan PD, Harper HA, Hutchin ME, Alpen EL. The renal tubular response to amino acid loading. J Clin Invest 1956; 35: 888-96.
12. Alberts MJ, Faulstich ME, Gray L. Stroke with negative brain magnetic resonance imaging. Stroke 1992; 23: 663-7.
13. Doubal FN, Dennis MS, Wardlaw JM. Characteristics of patients with minor ischaemic strokes and negative MRI: a cross-sectional study. J Neurol Neurosurg Psychiatry 2011; 82: 540-2.
14. Ng JL, Chan MT, Gelb AW. Perioperative stroke in noncardiac, nonneurosurgical surgery. Anesthesiology 2011; 115: 879-90.
15. Rassweiler J, Teber D, Kuntz R, Hofmann R. Complications of transurethral resection of the prostate (TURP)—incidence, management, and prevention. Eur Urol 2006; 50: 969-79.
16. Nag DS, Chatterjee A, Samaddar DP, Agarwal A. Perioperative stroke following transurethral resection of prostate: high index of suspicion and stabilization of physiological parameters can save lives. Rev Bras Anestesiol 2017; pii: S0034-7094 (16) 30344-0. doi: 10.1016/j.bjan.2016.05.003.
17. Raj MD, McDonald C, Brooks AJ, Drummond M, Lau HM, Patel MI, et al. Stopping anticoagulation before TURP does not appear to increase perioperative cardiovascular complications. Urology 2011; 78: 1380-4.
18. Selim M. Perioperative stroke. N Engl J Med 2007; 356: 706-13.
19. Forrest JB, Rehder K, Cahalan MK, Goldsmith CH. Multicenter study of general anesthesia. III. Predictors of severe perioperative adverse outcomes. Anesthesiology 1992; 76: 3-15.
20. Browner WS, Li J, Mangano DT. In-hospital and long-term mortality in male veterans following noncardiac surgery. The Study of Perioperative Ischemia Research Group. JAMA 1992; 268: 228-32.
21. National Collaborating Centre for Chronic Conditions (UK). Stroke: National clinical guideline for diagnosis and initial management of acute stroke and transient ischaemic attack (TIA). London: Royal College of Physicians, UK; 2008.

ภาวะสูญเสียการมองเห็นข้างเดียวแบบชั่วคราวหลังการผ่าตัดต่อมลูกหมากผ่านการส่องกล้องทางท่อปัสสาวะ

ภาวนี ศรีหล้า, แวนด้า ภัทรธรรม

ภาวะสูญเสียการมองเห็นข้างเดียวฉับพลันเป็นภาวะแทรกซ้อนที่พบได้น้อยมากหลังการผ่าตัด รายงานกรณีศึกษาของผู้ป่วยชายอายุ 65 ปี ได้รับการผ่าตัดต่อมลูกหมากผ่านการส่องกล้องทางท่อปัสสาวะ โดยระงับความรู้สึกด้วยการฉีดยาชาเข้าทางช่องไขสันหลัง หลังการผ่าตัดผู้ป่วยสูญเสียการมองเห็นของตาด้านซ้ายฉับพลัน ผลการตรวจเบื้องต้นตาซ้ายไม่ตอบสนองกับแสง การตรวจทางระบบประสาทอื่นๆ อยู่ในเกณฑ์ปกติ ผลการตรวจทางรังสีวิทยาของสมองด้วยเอกซเรย์คอมพิวเตอร์และเอกซเรย์คลื่นแม่เหล็กไฟฟ้าอยู่ในเกณฑ์ปกติ หลังจากได้รับการรักษาแบบภาวะสมองขาดเลือด การมองเห็นของผู้ป่วยกลับเป็นปกติ