Title	Loss of Color Vision After TURP
Authors	Andrea Fuller, M.D., Erin Bushell, M.D.
Affiliation	Stanford University and Palo Alto Vetrans Affairs Hospital

Introduction:

The transurethral resection of the prostate (TURP) syndrome has been well described and can include headache, nausea, vomiting, shortness of breath, cardiac arrhythmias, confusion, seizures, visual changes, and death. It is due to absorption of the solution used to distend and irrigate the bladder. Systemic fluid absorption leads to hyponatremia, hemolysis, hyperammonemia, and fluid overload. The manifestation and severity of symptoms varies with the amount and type of irrigant solution used. We report a case of an unusual manifestation of TURP syndrome -- transient loss of color vision.

Case Report:

A 66 year old, 100 kg male with prostatic hypertrophy presented for TURP. Past medical history was significant for hypertension. After premedication with midazolam 2mg IV and fentanyl 25mcg IV he was brought to the operating suite and connected to standard monitors. Multiple attempts were made at a spinal anesthetic, which was eventually successful at L3-4 with a long 12.75 25G Whittacre needle. 3cc of 0.5% isobaric bupivicaine and 40 mcg of fentanyl were administered intrathecally. He had a T4 sensory level bilaterally. No more sedative drugs were given. The patient was extremely interactive and interested in watching his operation on the video monitors. 1.5% Glycine solution was used to irrigate the bladder. Approximately one hour and forty minutes into the procedure, the patient appeared less interactive and when aroused complained of "seeing gray spots". Electrolytes measured revealed a serum sodium of 123 mmol/L. Lasix 10mg IV and approximately 400cc of Normal Saline were administered. The surgery was completed within 10 minutes and he was transported to the PACU, where he complained of nausea, intermittent shortness of breath, and persistent gray vision. His mental status was unchanged from baseline, physical exam was normal, and vital signs were stable. Serum sodium at this time was 127 mmol/L, osmolality was 280 mOsm/kg, and ammonia level was 337 umol/L(normal 7-35). An opthamology consult was obtained. The exam was normal with the exception of missing 4 out of 20 color plates bilaterally. He was discharged from the PACU to the ward. His vision returned to normal both subjectively and by opthamologic exam by the following morning.

Discussion:

Visual disturbances are an uncommon manifestation of the TURP syndrome and have been reported in the literature to vary from transient blindness to "gray darkening". 1.5 % Glycine is a common irrigating solution because it is nonionic, inexpensive, and provides good surgical visibility. Glycine is a nonessential amino acid which has been shown to be an inhibitory neurotransmitter in the retina, brainstem, and spinal cord. Previous prospective studies have demonstrated a decrease in visual acuity in patients after TURP with glycine irrigant. Other studies have shown decreased ocular evoked potentials in patients with elevated serum levels of glycine. These findings appear to be independent of hyponatremia and other electrolyte impalances associated with TURP syndrome. Glycine is metabolized to ammonia, which can be measured easily. Most importantly for both patients and clinicians, none of the previously reported cases have been associated with permanent vision loss.