Case Report

Terson's Syndrome : Experience of Two Patients in Acute Neurorehabilitation Ward

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Abstract

Terson's syndrome refers to the combination of intra-ocular haemorrhage and subarachnoid haemorrhage (SAH). We had two cases of Terson's syndrome at the same time with different rehabilitation challenges recently. Although it is not very uncommon, can be missed easily or diagnosed late due to many reasons. This can complicate/ delay ongoing neurorehabilitation process. The possibility of Terson's syndrome should be considered in every patient with SAH. All post SAH admission must be screened for visual acquity at the time of admission to neurorehabilitation ward. This helps for early diagnosis, prompt appropriate actions to achieve better outcome and prevent complications.

Key words **: Tersons syndrome, vitreous haemorrhage, subarachnoid haemorrhage, rehabilitation.**

Terson's syndrome refers to the combination of intra-ocular haemorrhage and subarachnoid haemorrhage (SAH) due to aneurysmal rupture, most commonly arising from anterior communicating artery. Haemorrhage can also occur following subdural or increased intra-ocular pressure from other causes. Terson's syndrome occurs in 4-27% of cases of aneurysmal SAH[1-3]. The haemorrhage is frequently bilateral, often missed in initial examination, however it may develop as late as 12 days post SAH and may be associated with rebleeding[2-5]. Patients must be followed up for complications like raised intra-ocular pressure, retinal membrane formation, retinal detachment and retinal folds[6]. Mortality rate may be higher in SAH patients with vitreous haemorrhage than in those without.

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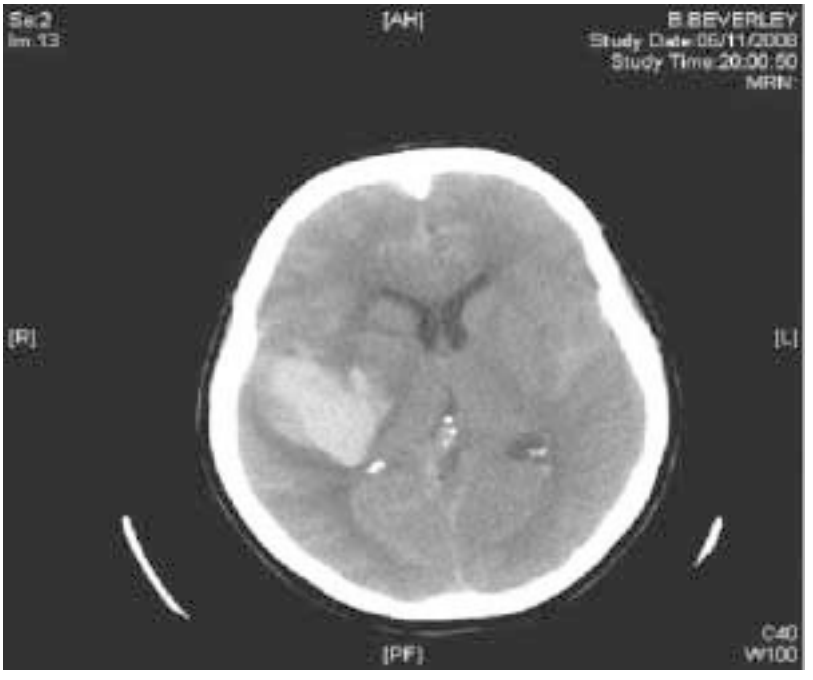
Case - 1

Mrs B, 45-year lady admitted with right MCA aneurysm with temporo parietal intracranial haemorrhage (ICH)/ SAH with raised intracranial pressure (ICP), underwent right frontotemporoparietal decompressive craniotomy and followed by clipping of right middle cerebral aneurysm. She then transferred to acute neurorehabilitation ward after 4 weeks. Visual examination at the time of transfer revealed patient only retaining vision for perception of light in her both eyes. On ophthalmologic examination and B scan of eyes confirmed of having bilateral vitreous haemorrhage. As complete blindness affecting her rehabilitation she underwent early vitrectomy and her vision improved. She could participate in therapy and discharged home successfully in few weeks time.

Case - 2

Mr M, 52-year gentleman who had ongoing severe headache for 2 weeks found unconscious by his wife at home. Computed tomography (CT) scan brain showed subarachnoid haemorrhage with large amount of blood in ventricles consistent with grade 4 SAH. On CT angiogram 8mm anterior communicating artery (ACOM) aneurysm found, which has been treated with coiling.



His Glasgow coma scale (GCS) remained 13-14 for next couple of weeks. He needed ventriculoperitoneal (VP) shunt for hydrocephalus after 3 weeks. At the time of transfer to acute neurorehabilitation ward after 5 weeks, he was independently mobile, conscious, confused and had deficits in cognitive function. His vision in right eye was found to be reduced to perception of light and left eye vision was normal. Ophthalmologic examination revealed unilateral vitreous haemorrhage. As he had normal vision in one eye which enables him to participate well with rehabilitation. We decided to manage him conservatively.

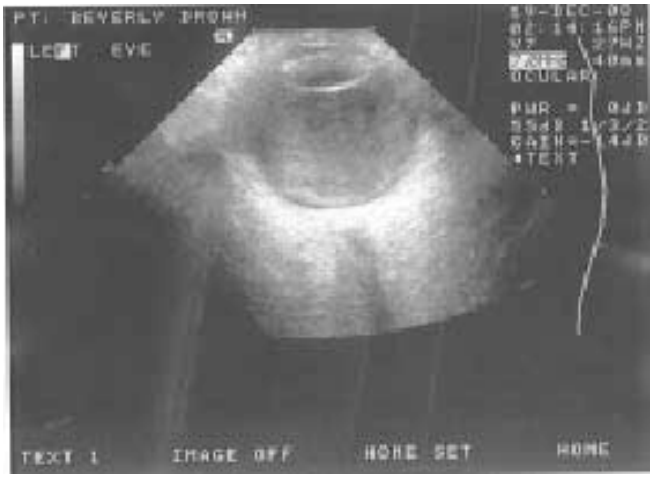
Discussion

The Greater Manchester Neurorehabilitation network provides service to a population of 3.2 million people. We receive more than 230 cases of SAH/year in our acute neuroscience centre and about 80% of them are secondary to aneurysmal bleed. Vitreoretinal consultants operate about 4-8 cases per year at our Manchester Royal Eye Hospital.

Cerebro-ocular syndrome which entails the findings due to intra-ocular haemorrhage in association with increased intracranial pressure following SAH. The first known report of the association was by the German Ophthalmologist Moritz Litten in 1881. French ophthalmologist Albert Terson's name is more commonly associated with the condition after a report by his hand from 1900[7]. Estimated aneurysmal SAH is about 6 per 100 000 population per year and up to one in four people with such aneurysmal bleed can have Terson's syndrome and is associated with more severe SAH [higher Hunt-Hess score, Fisher grade, high world federation neurosurgeons (WFNS) grade, low GCS][8].

Pathomechanics may be due to compression of central retinal vein and retinochoroidal anastomosis by elevated CSF pressure causing venous hypertension and disruption of retinal veins[9]. Visual acuity is often diminished and in some cases is the first sign of trouble. The amount of acute vision loss is related to the extent of the bleeding. Some patients suffering from ruptured intracranial aneurysms may exhibit vision loss secondary to the associated vitreous haemorrhage while not demonstrating any headache, neurological deficits or signs of meningeal irritation. Complications include elevated intra-ocular pressure, retinal membrane formation, retinal detachment and retinal folds. Mortality rate may be higher in SAH patients with vitreous haemorrhage than in those without vitreous haemorrhage (3- to 9-fold)[10]. Fundoscopy reveals vitreous opacity and B scan of eye is useful for confirmation of diagnosis.

Vitreous haemorrhage usually resolves spontaneously within a few months and long term visual prognosis is good in the majority of cases. Most cases clear spontaneously in 6-12 months. Vitrectomy should be considered in patients who fail to improve[11], if more rapid improvement is desired[4,11] or in cases of bilateral vitreous bleeding. The long term prognosis for vision is good in



about 80% of cases with or without vitrectomy. In unilateral cases if vitreous haemorrhage not clearing by 3 months, surgical options can be explored to hasten recovery. Even in cases without these significant complications, occasionally some degree of visual acuity loss may persist indefinitely because the subretinal haemorrhage or the injurious event itself disrupted the optic nerve, retinal pigment epithelium or the retinal tissue. When the vision remains decreased, it is typically secondary to persistent vitreous haemorrhage or retinal pigment epithelial disturbances and/or epiretinal membrane formation.

Key Points

- The possibility of Terson's syndrome should be considered in every patient with SAH
- All post SAH admission must be screened for visual acquity at the time of admission to neurorehabilitation ward
- This helps for early diagnosis, prompt appropriate actions to achieve better outcome, prevent complications

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