

III Nerve palsy in a Pilot : A Case Report

Wg Cdr GKG Prasad*, Gp Capt AK Sengupta**, Sqn Ldr D Gaur+

A case of III nerve palsy subsequent to closed head injury, in an aircrew is being reported. The aircrew underwent corrective squint surgery 1½ years after the accident which enabled restoration of full flying category to the aircrew.

Part I : Initial Clinical Presentation.

A 26 years old coast guard Assistant Commandant on probation was undergoing conversion for flying pilot duties. He was earlier holding a commercial pilot licence with 260 hours of civil flying. On 5th Oct 1985, he met with a scooter accident and had history of vomiting, bleeding from nostrils and unconsciousness of 14 hours duration. There was no history of seizures. He was initially treated in civil hospital and subsequently transferred to a nearby service hospital. X-ray skull and brain CT scan done in civil hospital showed no abnormality and he was treated only conservatively. Salient features on admission to service hospital were as follows :-

Examination of eyes : distant vision Rt 6/12 (with pinhole 6/9). Lt 6/18 (with pinhole 6/9). Rt eye showed complete III nerve palsy with ptosis, paralytic type of divergent squint of 25° to 30° and internal ophthalmoplegia with dilated and fixed pupil. The lateral rectus and superior oblique actions were maintained. Lt eye was unaffected. Fundus oculi and intra-ocular pressures were within normal limits. CNS examination revealed slightly spastic gait and Rt VII nerve palsy.

Question 1 :- What further evaluation and management is indicated at this stage?

Part II : Results of specialist consultation and further evaluation.

As he required further review by Neuro-surgeon/physician and ophthalmologist, he was referred to a service neurological centre, where he was diagnosed as a case of closed head injury with complications in the form of complete III Nerve

palsy (Rt), VII nerve palsy (Rt), Dysdiadokokinesis (Lt) and motor dysphasia. His distant vision improved to 6/6 each eye. He was advised a minimum of six months observation before contemplating any corrective surgery for squint. He was sent on sick leave for six weeks. On review after sick leave he was found to have improved in his neurological status except for III Nerve palsy (Rt) which persisted.

Question 2 :- Should the patient be disqualified permanently from flying status and if not what further follow up is required?

Patient was kept under observation for a period of six months in a temporary non-flying, medical category, after which he was found to have recovered completely from all the neurological



Fig - 1 March 1986 - showing the divergent squint (Rt)

manifestations except III Nerve palsy (Rt) which showed partial recovery resulting in mild ptosis, iridoplegia and divergent squint (Rt) of 20° (Fig 1). Diplopia charting and Hess screening revealed Rt medial rectus palsy and absence of binocular vision. No other sequelae of head injury or neuro-psychiatric manifestation was observed. Repeat EEG and other relevant biochemical parameters showed no abnormality. The period of observation was extended by another six months. He had undergone corrective squint surgery

* Classified Specialist (Ophthalmology), Air Force Central Medical Establishment, Subroto Park, Delhi Cantt - 110 010

** Senior Advisor (Av Med), DPMO, HQ South-Western Air Command, Jodhpur, Rajasthan.

+ Graded Specialist (Av Med), 7 Wing, C/o 56 APO

(resection of Rt medial rectus) in Feb 1987. Post operative reviews had shown that, his divergent squint (Rt) was fully corrected. He also showed a complete spontaneous recovery from ptosis (Rt)



Fig - 2. March 1987 - one month after corrective squint surgery showing complete recovery

(Fig 2). At this stage, he was advised orthoptic treatment for development of binocular vision and showed slow improvement. In course of time, by Sept 88, he developed grade III binocular vision with near normal fusion range. Hess screening and diplopia charting showed no abnormality. Rt pupil was mid dilated with sluggish reaction to light.

Question III :- Should the patient be returned to flying status at this time? What is the aeromedical disposition now?

Part IV :- Discussion and Aero-medical disposal

Ophthalmoplegia as a sequelae to head injury is well documented. It may lead to varying degrees of loss of binocular vision ranging from simple loss of stereopsis to complete loss of binocular vision with gross diplopia or suppression of image from the affected eye. Loss of binocular vision to any degree affects a pilot's career considerably. Poor fusion results in poor stereopsis and poor stereopsis results in poor distance judgement in landing aircraft. The distance judgement depends on many cues both binocular and monocular, and one of the important binocular cue is stereopsis or stereoscopic vision and this is

of little benefit beyond one-third of a mile. At 1000 to 1500 ft, stereopsis with naked vision may be of use under certain circumstances but it is a less accurate cue than at shorter range¹. Incidence of recovery from ophthalmoplegia either spontaneously or following corrective surgery in a pilot restoring his flying status once again are very few on record^{1,2}.

Diamond *et al*² reported a case where spontaneous recovery occurred in US Air transport pilot, five months after he was affected by oculomotor ophthalmoplegia secondary to Guillian Barre polyneuritis. His flying status could be restored in two years period.

In this case, though he was a trainee pilot of Coast Guards, he had the past experience of civil flying. He was periodically reviewed till his binocular vision was fully restored. Since the VII Nerve palsy, the motor dysphagia and dysdiadokokinesis had all recovered spontaneously, the same could well be expected to occur in the III Nerve palsy. To quite an extent a spontaneous recovery did occur even in the III² Nerve palsy with complete recovery from ptosis and reduction in the degree of divergent squint (Rt). An accurate surgical correction and continued orthoptic exercises finally resulted in a good binocular vision. This enabled restoration of his full flying category during review in Sep 1988, almost after three years of observation. Subsequently he had flown 30 hours with no problems and executive report on his flying was complimentary.

References

1. Vision in military Aviation-Technical report from Wright Air Development center Air Research and Development command US AF, Wright - Pattern Air Force Base, Ohio. Nov 1958.
2. Diamond S, Scheer HE, Leads FM : Pseudo - Internuclear oculomotor ophthalmoplegia secondary to Guillian Barre polyneuritis simulating myaesthesia gravis in an Air Transport Pilot, Aviat. Space Environ. Med. 1975; 46 : 204-207.