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Presumed 3rd nerve palsy following Bacillus Calmette — Guerin (BCG) vaccination

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A 60-year-old male presented with a history of binocular diplopia with decreased vision and drooping of the right upper eyelid. He had received a routine BCG vaccination one day prior to his symptoms. Though no association between the two events could be made, this case highlights the need for further studies in this regard.

Keywords: BCG; strabismus; third cranial nerve

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Предполагаемый паралич III черепного нерва после вакцинации БЦЖ

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У 60-летнего мужчины в анамнезе наблюдалась бинокулярная диплопия, снижение зрения и опущение правого верхнего века. За день до появления симптомов ему была сделана плановая прививка БЦЖ (Бацилла Кальметта — Герена). Хотя достоверную связь между этими двумя событиями установить не удалось, данный случай подчеркивает необходимость дальнейших исследований в этом направлении.

Ключевые слова: БЦЖ; косоглазие; третий черепной нерв

Конфликт интересов: отсутствует.

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Clinical case. A 60-year-old male, reported to us with a history of sudden binocular double vision along with decreased vision and drooping of the right upper eyelid for the past three days. He had received a routine BCG vaccination one day prior to his symptoms. There was a positive history of headache off and on. There was no history of any systemic disease, substance abuse or any other significant history. His best corrected visual acuity was 6/6 in the right eye and 6/18 in the left eye. Colour vision, pupillary size, pupillary reactions, intraocular pressure and fundus was within normal limits.

Torch examination revealed bilateral pseudophakia, moderate right upper lid ptosis with the right eye maintaining a position of exotropia with hypotropia (“down and out” position). There was a limitation in adduction, elevation and depression of the right eye (Figure). These findings were consistent with oculomotor nerve palsy of the right eye.

We ordered a complete blood profile, neuroimaging, and planned an ocular coherence tomography and B Scan plus a complete medical checkup. But the patient did not follow up and hence the aetiology and progress of this disease could not be ascertained.

Discussion. BCG immunotherapy is associated with various ocular conditions like conjunctivitis, uveitis, keratitis, endophthalmitis, retinitis, choroidal tubercle and retinal detachment etc. [1, 2]. Scleritis, optic neuritis, vasculitis and orbital inflammation has also been reported [3]. The common causes of isolated third nerve palsy in adults are diabetes mellitus, injury, hypertension, aneurysm, trauma [4], and even involvement secondary to systemic malignancy has been reported [5]. Clinical features of 3rd nerve palsy includes ptosis due to paralysis of levator palpebrae superioris. The “down and out” position of the eye is due to the unopposed action of lateral rectus and superior oblique muscles as these have a different nerve supply. Diplopia occurs due deviation of the affected eye resulting in the image falling on an extrafoveal point. However, ptosis occluding the pupil acts as a barrier to diplopia [6].

The pupil involving oculomotor nerve palsy is commonly related to compressive lesions like aneurysms, while pupillary sparing is seen in microvascular aetiologies [7]. Investigations include complete blood profile, systemic evaluation and neuroimaging [8]. Nonsurgical options are usually indicated as short-term measures to avoid diplopia. These measures include mono-ocular occlusion with a patch, opaque contact lens or blurred spectacle. Prisms and botulinum toxin (to paralyse the antagonist lateral rectus muscle temporarily) are also used. Surgical treatment is advised after a period of 6 months in case of persistence of signs and symptoms [9].



Figure. Limitation in adduction, elevation and depression of the patient right eye
Рисунок. Ограничение аддукции, подъема и опускания правого глаза пациента

We cannot confirm the causal association between this 3rd nerve palsy and BCG vaccination in our patient. It could be pure coincidental. Hence further studies are warranted.

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