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Photo Essay *Neuro-ophthalmology*

Craniospinal irradiation-induced dermatitis

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A 12-year-old male complaining of headaches and diminution of vision for the past 1 month was examined in the ophthalmology clinic. Best-corrected visual acuity was 20/60 in both eyes and intraocular pressures were 14-and 15-mm Hg in the right and left eyes, respectively (Goldmann applanation tonometry). The pupils were sluggishly reactive to light in both eyes. Anterior segment examination was normal but optic disc pallor was noted in both the eyes on posterior segment evaluation. Contrast sensitivity loss (Pelli Robson chart) and color vision deficits (Ishihara pseudoisochromatic plates) were noted in both eyes. Magnetic resonance imaging (MRI) of the brain revealed a solid mass in the cerebellar region, protruding into the fourth ventricle. In consultation with a neurosurgeon, a diagnosis of medulloepithelioma with compressive optic neuropathy was made. Lumbar puncture and MRI spine were suggestive of metastasis. The patient underwent surgical resection of the tumor, followed by chemotherapy and craniospinal irradiation. At 1-monthly follow-up examination, the patient reported skin lesions on the head and back. Desquamating erythematous skin lesion with epidermal thinning was noted over the head and spine region [Figures 1a and b]. This central erythematous desquamation was surrounded by scaling and hyperpigmentation in the periphery. The skin changes were suggestive of acute radiation-induced dermatitis (RID). Madarosis was noted in the lower eyelids, sparing the central lower eyelid in the right eye but involving the entire left lower eyelid [Figure 1a]. Vision had improved to 20/40 in both eyes, while optic disc pallor was persistent. Visual-evoked potential showed suboptimal responses.

The patient was started on topical corticosteroid gel, in consultation with a dermatologist for RID. RID is a frequently occurring side-effect of external beam radiotherapy (EBRT), affecting up to 95% of the patients.[1] Radiation-induced skin reactions (RISR) can be graded, based on severity from grade 1 to 4, ranging from dry desquamation and erythema to frank skin necrosis.[2] Patients receiving EBRT for head and neck carcinomas are more prone to develop severe RID or RISR. Depending on the onset of symptoms, RID is divided into acute RID (within 90 days of treatment) and chronic RID (later than 90 days). Our patient had acute RID of grade II severity. The pathophysiology of RID following EBRT lies in the generation of free radicals and reactive oxygen species, which elicit inflammatory response in the epidermis and dermis, by recruitment of cytokines and chemokines.[3] A variety of management options have been described for RID, including conservative options such as washing and dressing, laser therapies, corticosteroid treatment, emollients, and non-pharmaceutical products like *Aloe vera*.[3] Topical corticosteroids remain the first-line and most commonly used management option for RID.

Figure 1: (a) Madarosis in lower eyelids and radiation dermatitis on the head and (b) Dermatitis along the head and spine region which received radiation.

Ethical approval

The Institutional Review Board approval is not required.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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