

Kohl (SURMA) on CT Scan – An Incidental Finding

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ABSTRACT

Since long time, Kohl has always been given a priority in ophthalmology for treating multiple eye ailments, and females and children have also used it. There are different reports published in literature against the use of Kohl in eyes that causes high blood levels that may lead to lead poisoning. As part of such findings in the literature, we publish an incidental finding of Kohl in eyes on CT scan.

Keywords: CT scan, Kohl, Orbit.

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INTRODUCTION

Kohl (Surma) is an eye cosmetic traditionally used by Arabian people, especially women and children and occasionally men, but in recent times, its use has spread globally. It is commonly used by females and is available in local markets with different trade names like Kajal. Kohl is a mixture of many elements, with Galena (a natural mineral form of Lead and Sulfur) being its main component.^{1,2} Application of Kohl in the eyes also forms a thin layer along with pre corneal tear film, which prevents the lens and retina from ultraviolet radiation and subsequently plays an important role in the prevention and treatment of eye diseases such as conjunctivitis, posterior blepharitis, and delays cataract formation etc. It is also said that Kohl is used to keep the eyes clean and cool, sharpen vision and support them.

This case report aims to spread awareness amongst radiologists, ophthalmologist and other health care workers about the appearance of Kohl (Surma) on CT scans.

CASE REPORT

A 30 years old male presented in the emergency department with complaints of headaches for two days. On general physical examination, he was a young, healthy man sitting comfortably, well-oriented with time and place. However, he was afebrile and had a BP of 110/76 mmHg. No evidence of focal neurological deficit was identified on neurological examination.

On Ocular examination, unaided visual acuity

was 6/6. The intraocular pressure was 16 mmHg (OD) and 16 mmHg (OS), measured with a Goldmann Appplanation tonometer. The slit lamp examination of the anterior and posterior segments was unremarkable. No obvious ocular deformity was identified. The patient, however, has used Kohl in both his eyes.

The patient was then advised to CT scan the brain to evaluate the cause of the normal headache except for the incidental finding of bilateral symmetrical linear hyperdensity along the lower eyelid (Figures-1,2,3 & 4), likely secondary to the usage of Kohl.

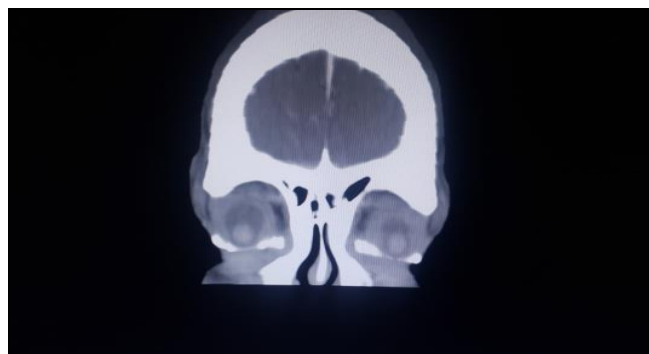


Figure-1: Coronal view of orbit.

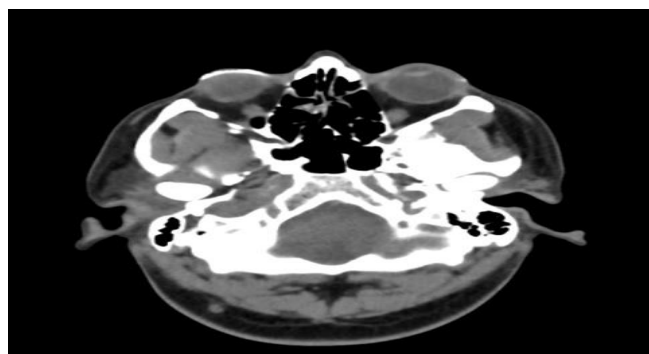


Figure-2: Right eye axial view of orbit and brain.

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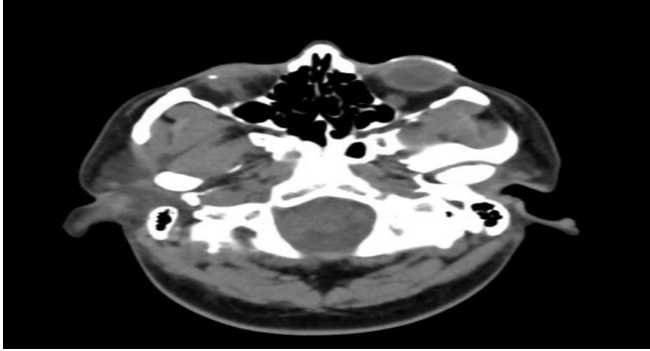


Figure-3: Left eye axial view of orbit and brain.



Figure-4: Photograph of 30 years old male with kohl in his eyes on lower lid.

DISCUSSION

The word Kohl is used as an eye preparation from the specialized stone called Kohl that contains some special ingredients, mineral and herbal origin products for the protection and management of different eye pathology. It has got various therapeutic effects. Apart from providing a shield for the eyes against UV radiation, it also protects them from humidity, and hot climate.^{1,2} Kohl is commonly used by females and children, which according to some authors, may sometimes lead to periocular pigmentation and concern for cosmetics. They also believe that prolonged use of Kohl may lead to higher levels of lead in conjunctiva and serum.³ However, on the contrary, many other authors like Aslam *et al*, and Healy *et al*, suggested that the transcorneal route does not primarily absorb the lead from Kohl; however, they raised the possibility that washing of some Kohl into the nasolacrimal duct in children can occur due to crying.^{4,5} Another explanation of increased lead levels has been described by Habib Ullah *et al*, which suggests that due to frequent rubbing of the eyes with fingers in children

can cause ingestion of some of the particles of Kohl, which are then absorbed by the stomach.²

The presence of different minerals and the lead in Kohl make it beneficial in preventing the lens and retina from UV radiation and the glare of the sun.^{6,7} Kohl also contains some ingredients like zinc oxide, which has the most powerful sun block property.⁸ Filella *et al*, reported the beneficial effects of one of the types of Kohl from India named Kohl Chikni Dawa (KCD) used for treating premature cataracts. It was seen that the presence of copper in Kohl inhibits the activity of lactate dehydrogenase, thus reducing the incidence of cataract formation.⁹

Radiologically, as the Kohl is primarily made of Galena, it appears as hyperdense, as seen in our case where there is bilateral symmetrical linear hyperdensity along lower eyelids. However, the appearance of Kohl on CT scan has not been reported in the literature to date to the best of our knowledge. This could be partially due to the pre-CT scan preparation or a limited usage of Kohl in western culture.

Conflict of Interest: None.

Author's Contribution

PAAA: Data collection, MSJ: Final review.

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