Short communication

Polyalkylimide filler in human immunodeficiency virus-associated facial lipodystrophy: Ophthalmic complications

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ABSTRACT

Case report: A 54-year-old male, who consulted for acute inflammatory palpebral edema. The patient had HIV infection (on antiretroviral treatment) and an associated facial lipodystrophy that was filled with polyalkylimide in both frontotemporal regions one year before. MRI revealed subcutaneous abscesses in the filled areas, which led to preseptal cellulitis. Complete remission was achieved with antibiotic therapy and monitoring.

Discussion: Polyalkylimide is a hydrogel that is recently used as facial filler without FDA approval. Although it was believed to be safe and useful for treating HIV lipodystrophy, it is not exempt from adverse effects (infection, abscesses, granulomas) that can compromise the eye area.

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Rellenos de polialquilamida en lipodistrofia facial asociada al virus de la inmunodeficiencia humana: complicaciones oftalmológicas

RESUMEN

Caso clínico: Varón de 54 años, quien consulta por edema palpebral inflamatorio agudo. Tiene infección por VIH en tratamiento antirretroviral y una lipodistrofia facial asociada que se rellenó un año antes con polialquilamida en ambas regiones frontotemporales. La RMN reveló abscesos subcutáneos en áreas de relleno, que condicionaron una celulitis preseptal. Se consiguió remisión total con antibióterapia y seguimiento.

Discusión: La polialquilamida es un hidrogel que se usa recientemente como relleno facial, sin aprobación de la FDA. Aunque se creía seguro y útil para tratar la lipodistrofia asociada al VIH, no está exenta de efectos adversos (infección, abscesos, granulomas) que pueden comprometer el área oftalmológica.

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Introduction

Antiretroviral therapy (ARVT) has changed the natural history of HIV-AIDS infection, turning it into a chronic disease with long survival rates. As with other therapies, even more so being a drug-intense therapy, it involves deleterious effects which could compromise physical and mental health as well as the social behavior of patients. One of these effects is lipodystrophy, one of the most stigmatizing characteristics of the disease. A number of therapies are being tried, such as facial filling, with varying results. This paper presents the case of a patient infected by HIV with facial lipodystrophy who experienced ophthalmological complications after receiving a synthetic filling.

Clinic case

A male, 54 years, who consulted due to left palpebral edema with one-week evolution. He denied any possible pathway of entry. Three days before he started oral treatment with cloxacillin and lornoxicam (NSAID) he did not experience improvement. Patient history included HIV infection 20 years before, at present classified in clinic category C, with ARVT comprising lopinavir/ritonavir and tenofovir/emtricitabine, exhibiting associated facial lipodystrophy. One year before, polyalkylimide gel filling was bilaterally injected in the frontotemporal region.

Examination confirmed the said edema, which extended up to the left frontotemporal region and was soft, warm, sensitive to palpation, without crepitation or pain with movement, and causing mechanical ptosis (Fig. 1). Visual acuity, pupil reaction, anterior segment and intraocular pressure were normal. Exophthalmos, secretion, fever or general involvement was not present. Due to the immunological condition of the patient and the probability of orbit cellulitis, hospital admission was decided for intravenous antibiotic therapy and imaging and microbiology tests. Treatment was established with clindamycin, ceftriaxone, methylprednisolone and the usual ARVT. Cerebral and orbit NMR revealed preserved and symmetrical structures and hyperintense polylobulated lesions in both frontotemporal regions compatible with subcutaneous abscesses (Fig. 2). Ocular secretion sample produced growth of coagulase negative staphylococci (normal flora).

Patient evolution was positive with total remission of palpebral tumefaction within 10 days and persistence in the filled zones (Figs. 3 and 4). The same medication was switched to oral administration during 15 additional days and the patient was referred to the Plastic Surgery Service of the originating center for assessment. Said Service extracted the left side filling by means of incisional and manual extraction of the fibrous capsule, as well as placing Penrose drainage. Samples of the material were taken for culturing, which produced growth of methicillin-sensitive Staphylococcus aureus. After the intervention, evolution was also satisfactory with resolution of the infectious condition.

Fig. 1 – (A) Left palpebral edema. (B) Tumefaction in the filling area.

Fig. 2 – NMR: subcutaneous abscesses (arrows) in the frontotemporal regions.
There is a range of therapeutic options for managing lipodystrophy with varying degrees of success. These include: changing ARVT, temporary fillings (autologous fat, collagen, hyaluronic acid, calcium hydroxyapatite, poly-l-lactic acid) as well as auxiliary therapies (glitazones, metformin, growth hormone).

Polyalkylimide (Bio-Alcamid® Polymekon, Brindisi, Italy) is a 4% biocompatible non-reabsorbable hydrogel used in Europe since 2001 as a permanent filler for lipodystrophy cases associated to HIV and facial aging. It is injected in the subdermic plane and is surrounded by a thin layer of collagen. Currently, it is not approved by the US Food and Drug Administration (FDA).

Positive preliminary results defined it as a safe, useful and easily removable material\(^1\) that produced significant improvements in the mental health and social behavior of patients with lipodystrophy-HIV.\(^2\) However, complications were subsequently reported including infection, product migration, recurring inflammation, inflammatory sterile abscesses, granulomas and hypersensitivity reactions.\(^2-5\) Said complications appeared between one month and 3 years after application\(^2\) and affected approximately 4.8% of patients.\(^5\) The cause appeared to be a disruption of the fibrocellular capsule.\(^3\) Complications were treated with antibiotics, steroids, NSAIDs, drainage or extraction with diverse results.\(^5\)

In the patient of this report, the polyalkylimide filling was complicated with a subcutaneous abscess which, probably because it was adjacent, led to the development of an uncomplicated left preseptal cellulitis. Aggressive empiric antibiotic therapy, covering the most frequent germs (S. aureus, Streptococcus pyogenes, Streptococcus pneumoniae, Haemophilus influenzae, anaerobics), clinic follow-up and supplementary tests for discarding more severe conditions (orbit cellulitis) or complications (preseptal abscess, necrosis, meningitis, cavernous sinus thrombosis) determined the positive evolution of the patient.

Regardless of the cause, with early and adequate therapy and the absence of complications the prognostic for preseptal cellulitis is excellent.

Polyalkylimide, used as a synthetic filler for treating ARVT-associated lipodystrophy is not free of adverse effects, including some in the inflammatory-infectious range, which could involve the ophthalmological area. Due to the short experience in its application, polyalkylimide is a therapy that should be researched in greater depth with close follow-up of the selected cases in which its application has been decided.

**Discussion**

Lipodystrophy is an alteration of the production, use and storage of fat in the body. It can express as lipoatrophy (which frequently appears in the face) or hyperadiposity. At present, it is believed that lipodystrophy is a side effect of ARVT due to mitochondrial lesion and is particularly associated to nucleoside reverse transcriptase inhibitors as well as protease inhibitors.

**Conflict of interests**

No conflict of interests has been declared by the authors.

**References**


