

Laser surgery new therapeutic alternative for benign palpebral lesions

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I. Introduction:

Certain benign palpebral lesions can be difficult to treat surgically depending on their nature, location or extent. The Argon laser is the most used in ophthalmological plastic surgery. Its use can, in very specific cases, represent an interesting alternative, or come to complement a conventional surgical treatment. Among the various lasers that can be used in ophthalmological plastic surgery are: blue-green argon, pulsed dye argon, CO₂ laser, Erbium laser, Nd-Yag laser. The argon laser is interesting because it can treat most of the benign palpebral lesions. The aim of the work is to describe the technique, advantages and main indications of the argon laser in the treatment of benign eyelid tumors.

II. Patients And Methods:

32 patients who presented at the ophthalmology department of 20 Aout university hospital of Casablanca for lesions of the eyelid margin from November 2017 to November 2018 were included. Before starting treatment, the procedure and the risks were explained to each patient. A careful examination to determine the nature of the lesion was conducted. Premedication with hydroxyzine was necessary. We used a topical anesthetic and a subcutaneous injection of 2% lidocaine in the region of the tumor with systematic protection of the eyeball by a shell. Two types of laser were used: Blue green argon laser and multi-spots coupled to the slit lamp. The spot parameters were: a high power of 800 to 1300 mWatt, an interval and exposure time of 0.2 seconds with a small spot diameter between 50 and 100 micrometers. The first spots were directed at the base of the lesion to be treated, then the impacts were applied more deeply to create a cleavage plane in the tumor until the entire resection of the lesion. We ended the procedure with the application of antibiotic-corticosteroid ointment with bandage and sun eversion. This treatment was continued twice a day for a week. Histopathological examination was requested systematically. All the patients were summoned on the seventh day and fourteenth day to assess healing.

III. Results:

65% of the patients were women. The mean age was 45 years old. The result was considered significant when there was no regrowth of the treated lesion at 6 months of follow-up and the absence of complications. The average size of the lesions was around 4.5mm at the long axis. The tumors were localized on the upper eyelid margin in 17 patients. The average duration of the application was 25 minutes, in the absence of any incident or complication while applying the laser. The treatment resulted in the healing of 187 eyelid margin tumors, of which 40 required a second argon laser treatment session. The treatment has failed at the management of 23 tumors. The histopathological evaluation revealed a nevocellular nevus without signs of malignancy in 20 patients, seborrheic keratosis in 6 patients, a single case of basal cell carcinoma, 2 cases of hydrocystoma and one case of multiple and bilateral warts. The evolution was marked by healing without skin retraction at one 2 weeks follow up. We noted the constitution of a trichiasis eyelash in a single patient; this was treated by Argon laser photocoagulation. No recurrence was observed.

IV. Discussion:

The use of the Argon laser in palpebral pathology represents a technique which can be proposed as a complement or as an alternative to surgery in locations presenting risks of aesthetic or functional damage (eyelid margin, juxta-ciliary region, region of the lacrimal meatus, internal canthus) [1,2]. The main indications for Argon laser photo-excision are represented by benign lesions, tumors' locations which can lead to functional complications with conventional surgical techniques (region of the tear ducts, internal segment of the

lower eyelid), or aesthetic damage (lesions near and / or in the eyelashes, lesions of the palpebral margin, extensive lesions requiring the use of skin grafts) [1]. On the other hand, any lesions suspected of malignancy or whose diagnosis is not certain constitutes an absolute contraindication to laser treatment [3,4]. A basic rule is essential: any chronic palpebral lesion of which the diagnosis is not established must be biopsied. We have differentiated the main indications for Argon laser excision into epithelial, adnexal, melanocytic, vascular, inflammatory and xanthomatous tumors [1,2]. Epithelial tumors include papillomas and warts. Adnexal tumors are presented by palpebral cysts, syringomas and hydrocystomas (It is important to resect the entire walls of this cystic formation to avoid recurrences) [5,6]. Melanocytic tumors are nevus tumors. A distinction is made, depending on the depth of the lesion: the junctional nevus (superficial: developed from the dermo-epidermal junction), compound nevus (more prominent) and intra-dermal nevus (deep). Inflammatory and degenerative lesions include the chalazion. The Argon laser has been tried with disappointing results in the treatment of pterygium. Argon laser can treat certain vascular tumors and malformations: Stellar angiomas, telangiectasias, planar angiomas and nodular angiomas [7]. Xanthelasma are more frequent than tuberosus xanthomas in palpebral pathology. Two rules are important to respect: the use of a test area to judge the quality of healing, and the need to carry out several photo-excision sessions for extensive or confluent xanthelasma; the photo-excision of these lesions does not prevent, as for surgery, the risks of recurrences, either on the treated area, or on a palpebral area initially free [1].

The technique is based on the protection of the eyeball which must be systematic [1,5]. It avoids dazzling the patient, as well as the occurrence of trauma by an ectopic laser photon which could touch the anterior segment during an untimely movement of the patient or an error in focusing by the practitioner. It is carried out by the installation, after instillation of Novesine®, of an ocular protection shell in the conjunctival fornix. Local anesthesia with simple xylocaine® allows the laser session to be performed comfortably for the patient. It is advisable, for the photo-excision of lesions with irregular contours, to mark with a dermatographic pencil the limits between the diseased area and the healthy skin to locate the area to be treated once the tissue infiltration by the local anesthetic is carried out. The parameters are variable and depend on the type of lesion to be treated. The spot size varies from 50 micrometers for small lesions to 200 micrometers and the power from 500 mW (lesions located at eyelid margin, warts, hydrocystomas, angiomas, xanthelasma, ...) to 1800 mW (papillomas, certain nevus) [8]; the duration of exposure can vary from 0.1 to 0.2 seconds at continuous shooting for cutaneous xanthelasma [1]. The first spots are directed to the base of the lesion to be treated, then the impacts are applied more deeply to create a cleavage plane until total excision of the lesion with the formation of a skin crust. The histopathological evaluation is systematic. The "post-operative" treatment is very simple. It consists of the instillation of an antibiotic-corticosteroid ointment for ten days, date on which the skin crust "falls", giving way to a new slightly pinkish skin which will take on the coloring of the neighboring palpebral tissues in 3 to 5 weeks [1]. During this period, the patient should be advised to avoid any prolonged exposure to the sun so as not to risk hyperpigmentation. Some patients may develop abnormal scar reactions (exuberant or dyschromic scars). These can appear for very large or confluent lesions developed in the lower eyelid and / or in the region of the internal angle. The advantages of the argon laser in the treatment of palpebral lesions are numerous [1]. It allows a control of the limits and the depth of the excision greater than that of surgery, the laser being adapted on a slit lamp provided with a magnifying optical system. The hemostasis is good allowing better healing, practically without secondary skin retraction, which is useful in the treatment of lesions located in the perimecic region of the lower eyelid. The technique is almost painless for the patient, not requiring the placement of sutures or bandages, which can be performed on a strict outpatient basis at the doctor's office, easily accepted by patients and requires minimal "post-operative" care. In addition, accessibility to the machine is easy, as all ophthalmologists can use an argon laser in their current medical practice. The disadvantages are minimal: the impossibility of the histopathological evaluation (at least in its entirety) of the resected lesion constitutes the main disadvantage of the use of the laser in pathology of the ocular adnexa. Its use should be reserved only for benign tumors; the obligation to carry out several sessions in the event of extensive injuries and the impossibility of carrying out this treatment in patients who cannot be installed with a slit lamp (young children, patients with special needs) constitute minor disadvantages of this therapeutic means.

V. Conclusion:

The use of the argon laser represents an adjuvant technique offered in addition to or as an alternative to surgery in particular locations of the eyelid presenting risks of aesthetic or functional damage. However, this is a technique which cannot in any way replace conventional surgery whenever there is a doubt about the histological nature of the lesion to be treated.

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