



Hemangioma of the oral and perioral region: Nd:YAG vs surgery



Ann. Ital. Chir.
Published online (EP) 14 October 2016
pii: S2239253X16025780
www.annitalchir.com

Domenico Parisi*, Francesco Ciancio**, Luigi Cagiano**, Monica Rucci*, Luigi Annacontini*, Aurelio Portincasa*

*Department of Plastic and Reconstructive Surgery, University of Foggia, Foggia, Italy

**Department of Plastic and Reconstructive Surgery, University of Bari, Bari, Italy

Hemangiomas of the oral and perioral region: Nd:YAG vs surgery

INTRODUCTION: Hemangiomas are very commonly diagnosed in childhood. The area most affected by this disease is the head and neck. In recent decades, the laser therapy has changed the treatment of hemangiomas through special techniques with advantages in bleeding risk management.

MATERIALS AND METHODS: Object of this study is comparing Nd:YAG laser and surgical excision, in terms of aesthetic outcomes, in the treatment of hemangiomas of oral and perioral region. The aim is the comparison between the two techniques in terms of aesthetic outcomes through photographic reportage and clinical supervision by three expert plastic surgeons (observers), unrelated to treatment, through the use of Patient and Observer Scar Assessment Scale.

RESULTS: The results of the investigation with POSAS show a better aesthetic result with the use of the Nd:YAG laser compared with excisional treatment with cold blade, both for the patient and for the external examiners.

CONCLUSIONS: Nd:YAG laser treatment for hemangiomas of the perioral region is a safe, fast and low complications choice. The lower risk of bleeding allows to use the laser technique even in the clinics not equipped for surgeries offering an important advantage to the operator. The main indication is represented by hemangiomas that cause a psychological and functional discomfort to the patient, such as frequent possibility of ulcerations and bleeding, in which it is clear the benign nature of the lesion.

KEY WORDS: Hemangiomas, Laser Therapy, Nd:YAG, Vascular lesions

Introduction

Hemangiomas, benign vascular tumors are very commonly diagnosed in childhood (especially in the 1st year of life)¹ and may have an isolated location (80%) or involve large areas of the body, even as multiple tumors (20%). The area most affected by this disease is the head and neck.

The treatment of these diseases changes according to the location and size of the lesions themselves. Wide hemangiomas of the face have indication both for embolization and for surgical treatment, although the use of laser therapy can reduce the size of these lesions². Vascular lesions find ample benefit from surgical treatment allowing histological examination, the main limitations are the risk of bleeding and the residual scar.

Laser devices are finding increased use in the treatment of cutaneous lesions in surgery, dermatology and cosmetic surgery³.

In recent decades, the laser therapy has changed the treatment of hemangiomas through special techniques with advantages in bleeding risk management. The Nd:YAG is the most effective device for the high specificity for

Pervenuto in Redazione Aprile 2016. Accettato per la pubblicazione Luglio 2016

Correspondence to: Francesco Ciancio MD, Department of Plastic and Reconstructive Surgery, Viale Pinto 1, 71122- Foggia, Italy (e-mail: francescociancio01@gmail.com)

the hemoglobin present in each of these lesions ^{4,5}.

Object of this study is comparing Nd:YAG laser and surgical excision, in terms of aesthetic outcomes, in the treatment of hemangiomas of oral and perioral region.

Materials and Methods

Twenty hemangiomas of the oral and perioral region, average size of 13 mm in diameter, were observed from January 2015 to September 2015:

- 10 were treated with Nd-YAG laser, 4mm spot, average value density 110J / cm², 1Hz frequency, in single application under local anesthesia;
- 10 underwent complete surgical resection and reconstruction.

All lesions showed clear benign diagnostic elements. Hemangiomas with more than 25 mm in diameter were excluded from the study.

The aim is the comparison between the two techniques in terms of aesthetic outcomes through photographic reportage and clinical supervision by three expert plastic surgeons (observers), unrelated to treatment, through the use of Patient and Observer Scar Assessment Scale ⁶. The POSAS scale consists of two parts, one directed to the patient and another to the observer. Finally objective of this study was the evaluation of discomfort to the patient through the pain visual analogue scale (VAS).

All patients gave informed consent to undergo the methods in question and to be photographed for scientific purposes.

Results

Patients have come to full recovery with an average of 11 + -3.7 days time in the group undergoing surgery and 14 + -2.3 days in the laser group. While in the group underwent excisional biopsy the scar is evident, also in a long term, in patients undergoing laser treatment the remaining skin sign is often neglectable (Figs. 1, 2, 3, 4, 5).

The results of the investigation with POSAS show a better aesthetic result with the use of the Nd:YAG laser compared with excisional treatment with cold blade, both for the patient and for the external examiners. Patients undergoing excision with knife complain was a high degree of discomfort, mainly due both to post-operative pain in the first 24-48 h, and to the need for medical examinations for wound dressing or to sutures removal. The laser treatment showed minor analgesics levels as shown by the survey with VAS.

In the assessment of residual scars with the POSAS scale by patients, the average value was 25.4 for the laser group and 43.6 for the surgery. The average values of POSAS scale by three observers were 13.8 for the laser group and 25 for the group subjected to excisional biopsy.

The results of the VAS scales testify less discomfort for patients treated with Nd:YAG compared to those who underwent excision with cold knife (mean values 6.1 surgery, 3.3 laser).



Fig. 1: Hemangioma of the upper lip treated with Nd: Yag laser. In high before treatment, in the lower check after 30 days from treatment.



Fig. 2: Hemangioma of the perioral region. To the left before the treatment, in the right after 60 days from the treatment.



Fig. 3: Hemangioma of nari-nale region. To the left before the treatment, right after 30 days from the treatment.



Fig. 4: Hemangioma of lower lip tractated with Nd:YAG laser



Fig. 5: Hemangioma of lower lip tractated with Nd:YAG laser on the left. After 40 days on the right.

Discussion

As reported in literature the advantages of laser treatment are represented by the reduction of the risk of bleeding and no need for surgical sutures while the main disadvantage is represented by the impossibility to carry out the histological examination^{7,8}.

The Nd:YAG laser allows a highly selective photocoagulation for the hemoglobin pigment so as not to damage the surrounding tissues. The lower risk of bleeding allows to use the laser technique even in the clinics not equipped for surgeries offering an important advantage to the operator. Another advantage for the surgeon is less contact with body fluids (blood) with a lower risk of infection associated with the procedure.

According to our survey, we can say that the hemangiomas laser treatment is a viable therapeutic strategy in cosmetic area as the cephalic district. In sensitive areas such as the upper lip and the perioral region, with high psychological impact⁹, the possibility of using laser therapy, with better aesthetic outcomes, is a chance of fundamental importance for the final result. The possibility of not altering the labial profile is certainly greater with the methodical Nd:YAG compared to excisional biopsy.

Surgical excision is the only one technique that allows histological diagnosis of the lesion and should be preferred in suspicious vascular lesions for malignancy since it can be burdened with a greater patient discomfort and a worst scar outcome. On the other hand, the laser treatment can be used in case of lesions with clear clinical-diagnostic benign elements, in which histological analysis can be avoided.

Conclusion

Nd:YAG laser treatment for hemangiomas of the perioral region is a safe, fast and low complications choice. The bleeding risk of laser-therapy is certainly minor, compared to surgical excision with cold knife. The best aesthetic result, compared to traditional surgery, indicates that the laser method is the first choice for hemangiomas of the perioral region of limited dimensions. The main indication is represented by hemangiomas that cause a psychological and functional discomfort to the patient, such as frequent possibility of ulcerations and bleeding, in which it is clear the benign nature of the lesion.

Riassunto

Gli emangiomi rappresentano delle neoplasie benigne, frequentemente diagnosticate in età infantile che spesso coinvolgono il distretto testa-collo. In letteratura esistono diversi tipi di trattamenti per queste lesioni e le indi-

cazioni al trattamento cambiano in base alla localizzazione, alle dimensioni e alla presentazione clinica.

Obiettivo di questo studio è il confronto tra la metodica laser con il Nd:YAG e l'escissione chirurgica tradizionale di 20 angiomi della regione orale e periorale. Tramite la POSAS scale e la VAS scale sono stati confrontati gli *outcomes* estetici e funzionali delle due metodiche attraverso anche l'ausilio di tre Chirurghi esaminatori esterni ai trattamenti. I risultati ottenuti ci hanno permesso di affermare che il Nd:YAG laser è una scelta sicura, affidabile e di relativamente semplice esecuzione nel trattamento degli emangiomi della regione orale e periorale. L'indicazione a questo tipo di trattamento deve sempre considerare l'impossibilità di eseguire un esame istologico per cui devono essere selezionate quelle lesioni che presentano chiari elementi diagnostici di benignità. Il trattamento chirurgico di queste lesioni, gravato da un maggior discomfort per il paziente, con *outcomes* estetico-funzionali peggiori, deve essere riservato a quelle lesioni con caratteristiche cliniche sospette per malignità.

References

1. Achauer BM, Chang CJ: *Management of hemangioma of infancy: review of 245 patients*. Plast Reconstr Surg, 1997; A99(5):1301-08.
2. Pompa V, Valentini V, Pompa G, Di Carlo S, Bresadola L: *Treatment of high-flow arteriovenous malformations (AVMs) of the head and neck with embolization and surgical resection*. Ann Ital Chir, 2011; 82(4):253-59.
3. Gubitosi A, Ruggiero R, Ortolani R, et al.: *Ambulatory laser-assisted surgery: A multicenter application and experience*. Ann Ital Chir, 2012; 83(6):515-21.
4. Vesnaver A, Dovöak D: *Treatment of large vascular lesions in the orofacial region with the Nd:YAG laser*. J Cranio-Maxillofacial Surg, 2009; 37(4):191-95.
5. Romeo U, Del Vecchio A, Russo C, et al.: *Laser treatment of 13 benign oral vascular lesions by three different surgical techniques*. Med Oral Patol Oral Cir Bucal, 2013; 18(2).
6. Draaijers LJ, Tempelman FR, Botman YA, et al.: *The patient and observer scar assessment scale: A reliable and feasible tool for scar evaluation*. Plast Reconstr Surg, 2004; 113:1960-965.
7. Bènaeau H, Labbè D, Domp Martin A, Boon L: *Place de la chirurgie dans les hémangiomes au stade des séquelles*. Ann Chir Plast Esthet, 2006; 51(4-5):330-38.
8. Vesnaver A, Dvorsak: *Treatment of vascular lesions in the head and neck using Nd: YAG laser*. J Craniomaxillofac Surg, 2006; 34(1):17-24.
9. Hoornweg MJL, Grootenhuis MA, van der Horst CM: *Health-related quality of life and impact of haemangiomas on children and their parents*. J Plast Reconstr Aesthet Surg, 2009; 62(10):1265-271