NEAR INFRARED LASER COAGULATION – METHOD OF CHOICE IN TREATMENT OF COMPLICATED HEMANGIOMAS IN CHILDREN

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Ten years' experience of treatment of hemangiomas in children with developed by authors low invasive laser technology[1,2] is presented and analyzed in this work. In this method the destruction of hemangioma is caused by laser induced coagulation of blood in the hemangioma resulting in obliteration of its vessels. We use near infrared laser radiation which sufficiently strongly is absorbed by hemoglobin and significantly weaker by water and melanin. This enables reliable destruction of hemangioma without significant irreversible thermal burn of the skin.

The technology was applied to 1246 children, mainly (¾) girls, at the age from 24 days till 13 years, 42% children were under 6 months. There were 1619 hemangiomas in all, 59 % of them were cavernous and combined (included capillary and cavernous components). Majority of hemangiomas (68 %) was localized on face and neck; a few had localizations on tongue, trachea, rectum and knee joint. All hemangiomas were in the proliferation and persistence stages under sonographic classification[3]. More than half patients were arrived from Russian regions and abroad with hemangiomas unsuccessfully treated earlier domiciliary.

Most complicated cases are all cavernous and combined hemangiomas as well the capillary ones located on face near eyes, nose, and lips, on auricles, on perineum near anus and genitals, in respiratory and gastrointestinal tracts.

Diode lasers with 920, 970 and 1060 nm wavelength and silica-silica light guides of 0.4 mm core diameter were applied. Two methods of irradiation were used: distant irradiation for capillary components and interstitial one (through puncture) for cavernous ones. The interstitial irradiation is performed in CW mode with power 1.8-2 W, the distant irradiation - in pulse-periodic mode with average power 1.3-2 W, pulse/pause durations 30-50/200-250 ms. An endoscopic equipment applied at treatment of hemangiomas in respiratory and gastrointestinal tracts. Laser actions for majority patients were performed under general anesthesia.

Excellent and good results both cosmetic and functional have been achieved in 94% cases; there was a significant improvement in the rest cases. A few treatment cases are shown in the following pictures.

Capillary hemangioma of forearm with ulceration. One treatment session.

Before treatment

3 weeks after treatment

4 months after treatment

Vast combined hemangioma of chest and left shoulder. A few treatment sessions.

Before treatment

First stage of treatment

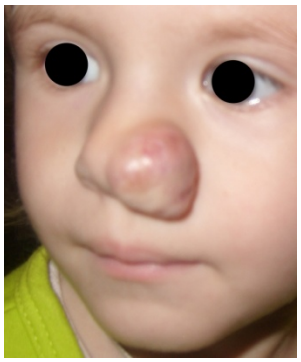
1 year after treatment start

Capillary hemangioma of vulva. One treatment session.

Before treatment

1 month after treatment

Cavernous hemangioma of nose.
A few treatment sessions.



Before treatment

1.5 years after treatment start

Combined hemangioma of face.
A few treatment sessions.

Before treatment

2.5 years after treatment start

Our clinical experience allow us to conclude that technology of near infra-red laser coagulation in treatment of various hemangiomas in children, independently and in combination with other methods, is highly reasonable and can be recommended to wide use in clinical practice.

REFERENCES

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