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The Efficiency of Cryosurgery in the Treatment of Maxillo-Facial Haemangiomata

Efektywność kriochirurgii w leczeniu naczynek twarzy

INTRODUCTION

Cryotherapy uses low temperatures in order to induce cryonecrosis in the diseased tissue (2). Cryosurgery has been in clinical use for treatment of selected oral diseases such as papillomatosis of oral mucosa, hyperplasia inflammatoria paillaris palati, haemangioma and others. The mechanism of such action and the technique of using low temperature in therapy have been described in our numerous publications (1—8). The object of this paper is to evaluate the technique and results which were obtained.

MATERIAL AND METHODS

In the years 1980—1991, 402 patients with maxillo-facial haemangioma were treated in the Clinical Hospital of Maxillo-Facial Surgery in Lublin. The patients were at the age from 6 months to 65 years.

In the therapy we have used a cryoapplicator constructed by Research Center of Medical Technology — Low Temperature Department in Warsaw, containing N₂ (liq.) as a collant (1, 3).

Our own method of treating a haemangioma of the face consists of deep triple freezing cycles. The cryoapplicator is cooled down to -190°C and applied for 20—30 secs on the tumor area with a slight pressure on the tissue. That gives rise to a relatively large frozen area encompassing the entire haemangioma (4).

The cryoapplications were repeated once daily for 3 consecutive days followed by an interval lasting until the necrotic tissue has sloughed. The cryoapplications are repeated after about 20 days. The whole treatment consists of 3 to 17 cycles of cryosurgical application, depending on the size of the tumor. While receiving cryoapplications the patients are hospitalized, at the time of tissue sloughing they are followed up at outpatient clinics. The cryoapplications are performed under operating-room conditions (8).

As a rule external carotid angiography should be performed in each case of extensive maxillo-facial haemangioma because such examination enables identification of the type and exact localization and range of a lesion (5—7). Precise visualization of the range of pathological changes allows to choose the safest method of treatment and to estimate its efficiency.

It is not always possible to perform contrast examinations, because only too often patients do not give their agreement to them. Especially parents do not permit to perform angiography in their children and thus diminish the possibility of choosing the optimal method of treatment for their child.

RESULTS

The cases presented in the following paper are interesting because they represent various histological types of haemangioma treated by means of the same method, mainly cryotherapy. Moreover, in all cases very good therapeutic results have been achieved.

Case 1. An eight-month-old girl with an extensive haemangioma encompassing her nose and forehead. The broad convex tumor spread from the root of the nose to the forehead. Diagnosis — congenital fibrohaemangioma. The girl has been treated for 5 years and during this time received 17 cryoapplications. The cosmetic result was satisfying (Fig. 1a—d).

Case 2. A two-year-old girl with tumor in the left canthus. The lesion had the diameter of 2 cm, as convex, had intense colouration and was blemishing child's face. Diagnosis: haemangioma simplex. After the treatment the cosmetic result is very good (Fig. 2a, b).

Case 3. A three-year-old girl with a flat haemangioma situated at the root of the nose. It was diagnosed as angioma stallatum. After only 3 cryoapplications the cosmetic effect was satisfying (Fig. 3a, b).

Case 4. A fourteen-month-old child with haemangioma of the lower eyelid. The tumor was extensive, convex and had bleeding ulcerations. The parents could not control recurring bleeding from idiopathic ulcerations and this made them seek medical help. Diagnosis: haemangioma racemosum. After two cryoapplications the parents gave up further treatment because they considered it to be sufficient. The cosmetic effect was poor in this case (Fig. 4a, b).

Conclusions

1. In all the treated patients the activity of ATP-ase was examined. It was observed that the ATP-ase activity disappeared after 24 h after cryoapplication and on the 15th day tissue showed a large activity of the enzyme. The increase in ATP-ase activity seems to play a role in formation of the scar.

2. When analysing the obtained results it can be concluded that cryosurgery is an effective method, safe and producing very good cosmetic effects.



Fig. 1a



Fig. 1b



Fig. 1c



Fig. 1d



Fig. 2a



Fig. 2b



Fig. 3a



Fig. 3b



Fig. 4a



Fig. 4b

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EXPLANATION TO FIGURES

Fig. 1. An 8-month-girl; a — fibro-haemangioma, congenital changes increasing in course of time, b — her state after 10 cryoapplications, c — her state after 2 years, d — her state after 5 years.

Fig. 2. A 2-year-old girl; a — haemangioma simplex, b — her state after 2 years of treatment.

Fig. 3. A 3-year-old girl; a — angioma stellatum, b — her state after 3 cryoapplications.

Fig. 4. A 14-month-old girl; a — bleeding haemangioma racemosum with ulcers, b — her state after 2 cryoapplications.

STRESZCZENIE

Zmiany naczyniowe okolicy twarzoczaszki leczono za pomocą kriochirurgii. W latach 1980—1991 leczono 402 pacjentów w wieku od 6 miesięcy do 65 lat z *haemangioma cavernosum* i *fibroangioma*. Przez 5—9 lat prowadzono obserwacje pooperacyjne. Leczenie składało się z 3—17 krioplikacji. W niektórych przypadkach wykonywano badanie angiograficzne, które uwidaczniało zasięg zmiany patologicznej i przesądzało o zastosowaniu krioterapii. Zaletami kriochirurgii są: łatwość wykonania, względny brak powikłań i krwawienia po zabiegu oraz bezbolesność, a także wolny od powikłań okres naprawy tkanek i powstanie blizny w leczonych tkankach.

