UPON HOMOPLASTICS OF DEFECTS OF CRANIUM

D. Tcholakov, N. Dimitrov

The successes of transplantology allow more often bone-grafts in the cranial surgery. There are many methods and techniques of covering of cranial defects. The advantages and disadvantages of these methods show the variety of the applied plastic materials. Although there are various methods — autoplastics, heteroplastics, alloplastics and homoplastics (3, 5, 7, 8, 9, 10) the question of plastic covering of cranial defects is still actual. There are certain reports concerning cranioplastics with homotransplantation or preserved bones (1, 2, 4, 6). Based on bibliographical data and the necessity of application of biological methods in cranioplastics we have for an object of our present study to analyse our experience of application of homotransplantation (homograft) for plastic covering of cranial defects.

Materials and methods

Our study covers 21 clinical investigations of patients with posttrepanation cranial defects with secondary applied homoplastics. In the Clinic of Neurology and Neurosurgery, Higher Institute of Medicine, Varna city, we adapted and suggested the method of homoplastics for cranial defects by using lyofilysated or frozen human bone-graft, prepared in the Department for Tissue Preservation (Institute «Pirogov», Sofia). The patients are examined before operation, immediately after operation (first week) and after discharging from the clinic (several months later). 15 of the patients are male and 6 — female. Lyofilysated bone-graft is applied to 17 of the patients, whereas frozen bone-graft is applied to the rest 4. The adapted method of homoplastics with graft from human cranial calvaria has the following characteristics: arch-like skin cut, 1—2 cm from the edge of the bone-defect; maximum spared and atraumatic formation of skin-aponeurotic lambo by leaving it on wide base corresponding to the blood-supply of the operated zone; no electrocoagulation is applied to the skin margins; aesthetic and proper skin stitches can be made due to the preliminarily set contour repels; wider and with enough trophical characteristics periostal lambo is formed; by a little luer the bone-defect margins are freshed and prepared for a tight contact with the bone-graft; dura is prepared as usually and eventual cicatrices are cut. The lyofilysated bone is immersed into saline solution for 30 min after taking it out of the sterile flask. The homograft is cut and formed in due size by using a diamond separator set to a dentist electromotor. The margins are precisely cut in order to fit the cranial defect (by a dentist milling-machine the edges and surfaces of the graft are smoothed). The graft is fixed to the healthy bone at 3 different places (at least); the connection is performed by an orthopaedic wire and the ends of the latter are inserted in the openings of the healthy bone after twisting. No movement of the graft in its place is recommended. It is covered with periost by stable stitches and the operative wound is closed afterwards.
All patients reported no complications after operation. Their operative cuts restored primarily. The early control craniograms proved the thoroughly worked tightening of the graft to the bone and its fixation. No subperiostal or subcutaneous collection is registered as a result of the cranioplastics; such collections are an often finding after alloplastics of cranial defects with duracril.

Only one of our patients shows a late fistulization. The healing of the first operative wound of this patient was also complicated and long-term.

The period of application of secondary homoplastics is determined individually for every patient; usually it is performed in the first months after operation.

Discussion

Our experience compared with literature data makes us suggest that homoplastics of cranial defects has its biological and surgical significance. The difficulties of preparation of homografts are overcome by application of aforementioned instruments and techniques. The orthopaedical wire, though a metal one, is well accepted in the organism as A. M. Dymond et al. (1970) also report.

The search for a suitable graft is very important (4, 5, 9). Our experience of the application of homoplastics for cranial defects together with the results of other authors (1, 4, 5, 6) prove the advantages of this method and can be applied widely in the cranial surgery.

REFERENCES


К ВОПРОСУ О ГОМОПЛАСТИКЕ ДЕФЕКТОВ КРЫШИ ЧЕРЕПА

Д. Чолаков, Н. Димитров

РЕЗЮМЕ

Авторы рассматривают вопрос о применении метода гомопластики ряда черепных дефектов в различные сроки после первой операции. Они рекомендуют использование некоторых инструментов и определенной техники при пересадке, которые отличаются от использованных в практике и цитированных в доступной литературе до сих пор. Оперированные 21 больной с постоперационными дефектами показывают отличную реактивность и восприимчивость здоровой кости к пересаженной кости.

Авторы рекомендуют гомопластику дефектов черепа по причине ряда преимуществ, которые устанавливаются при клиническом наблюдении оперированных с применением этого метода больных.