



诚信 温暖 专业



自体组织 储存中心

Autologous Tissue Bank

自体颅骨移植标准启动者
The initiator of autologous
cranium transplantation

自体颅骨去内毒素工艺开拓者
The pioneer of autologous cranium
endotoxin free technology

自体颅骨组织库行业领军者
The leader of autologous cranium bank

自体颅骨组织库团体标准制定者
The drafter of autologous cranium bank



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启载生物科技（成都）有限公司

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COMPANY PROFILE

公司简介

2项
发明专利

12项
实用新型专利

11项
计算机软件著作权



造福患者 共创健康未来

启载生物成立于2017年，聚焦于组织修复再生领域，本着以患者为中心的理念，洞察临床未被满足的需求，不断深入探索和研究，成为国内最早从事自体颅骨收集、处理和储存的企业。经过长足发展，启载生物将致力于打造亚洲最大自体组织储存中心，以“为组织修复再生领域贡献力量”为终身使命，以“诚信、温暖、专业”为核心价值观，为人类健康事业保驾护航。

在大健康的新环境下，启载生物将继续秉承“造福患者、共创健康未来”的使命，为自体颅骨领域的发展贡献更多力量。

Founded in 2017, Qizai Biotech specializes in the realm of tissue repair and regeneration, embracing a patient-centric approach and a profound understanding of unaddressed clinical necessities. Through relentless and profound exploration and research, the company has emerged as the pioneering enterprise in China dedicated to the collection, processing, and storage of autologous skulls. Amidst its rapid progression, Qizai Biotech is steadfast in its commitment to establish the largest autologous tissue storage center in Asia, guided by a lifelong aspiration to "contribute significantly to the advancement of tissue repair and regeneration" and upheld by core values that encompass "integrity, warmth, and professionalism, escorting the cause of human health." In the evolving landscape of healthcare, Qizai Biotech remains resolute in upholding its mission: "Benefiting patients and co-creating a healthy future." It strives to make even greater contributions to the development of autologous skull technology, thereby enhancing the quality of life for patients worldwide.

学术研究合作单位



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THREE MAJOR INNOVATIONS**三大创新****启载·自体组织储存中心
不仅有实力，更有创新**

QIZAI · Autologous Tissue Bank
A Beacon of Strength, Innovation, and Beyond

**我们的创新从未止步，以客户需求为导向，
提供专属储存方案，不断为组织修复再生领域贡献力量！**

We are relentless in our pursuit of innovation, steadfastly customer-centric, and committed to offering unparalleled storage solutions. Continuously, we strive to make meaningful contributions to the ever-evolving field of tissue repair and regeneration.

**制定团体标准****Development of group standards**

2022年，起草并制定了行业内第一部相关标准，《自体颅骨组织库》团体标准，该标准获得了国家、行业和临床专家一致认可。

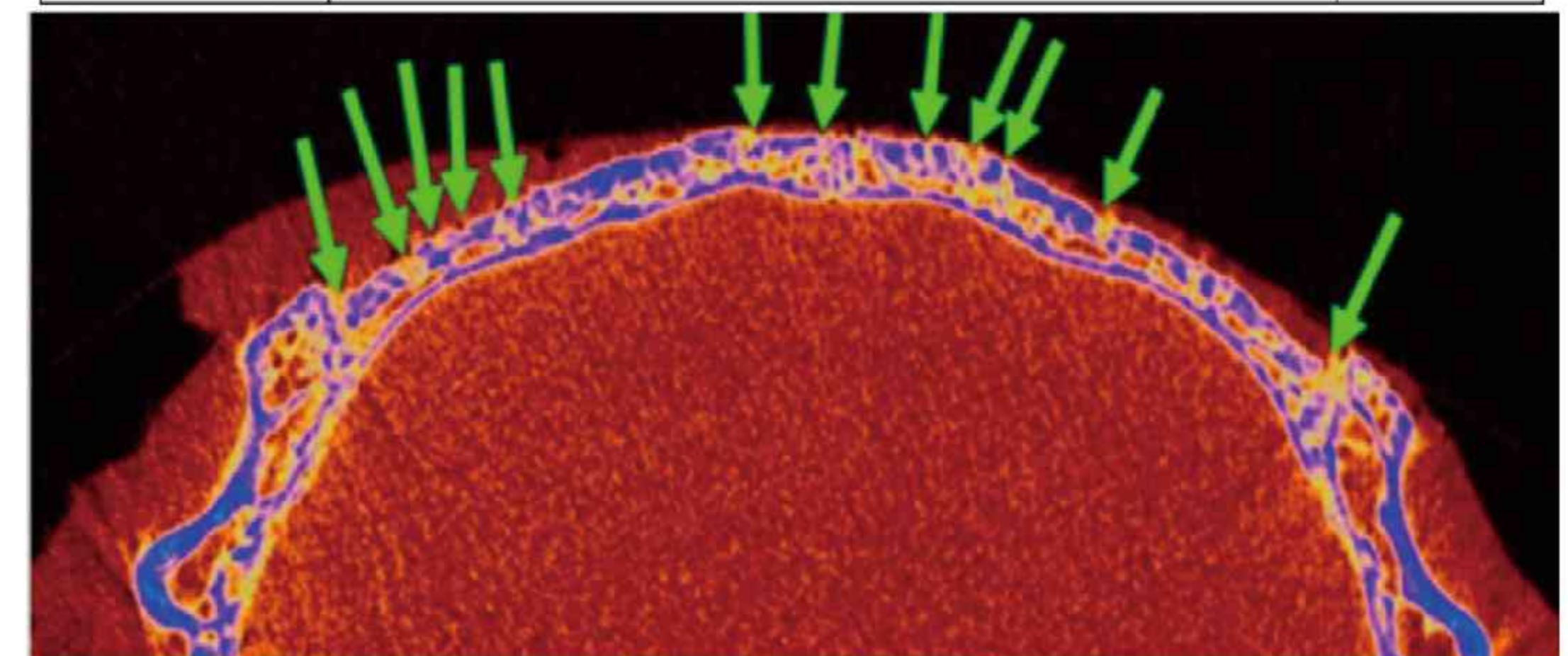
In 2022, a pivotal milestone was achieved within the industry with the drafting and formulation of the inaugural relevant standard, the "Autologous Cranium Bank" Group Standard. This groundbreaking initiative has garnered unanimous recognition from esteemed national, industry, and clinical experts alike, marking a significant advancement in the field.

内毒素工艺与保险保障系统**Endotoxin free process and insurance protection system**

2023年，发布全球全国首创自体颅骨去内毒素工艺，树立强大的行业技术壁垒。并在全国率先与平安达成战略合作，首创自体颅骨保险保障系统。

In 2023, we proudly unveiled the world's premier autologous skull endotoxin free processing technology, successfully erecting a formidable technical barrier within the industry. This pioneering achievement marked our inaugural strategic collaboration with Ping An, ushering in a novel era of autologous skull insurance protection systems.

保障项目	责任说明	保额
手术意外身故残疾	住院期间发生术后 30 日内因手术意外或麻醉意外导致身故残疾	1 万元
颅骨重度吸收	被保险人行颅骨修补术/颅骨回植术后 730 天内，因吸收原因导致异体材料修补	7 万元
回植术后感染	自体颅骨修补术/自体颅骨回植术后 45 天内，因感染原因取出已经回植的自体骨瓣	2 万元

**启动新标准****Launch of the new standard**

2024年，启动《自体颅骨移植标准》制定工作。



In 2024, we launched the seminal "Autologous Cranium Transplantation" standard, setting a new benchmark in the field.

03

PROJECT PROCESS

项目流程



患者筛选



独特工艺处理



合格出库



回植手术

1 一期手术
摘除颅骨瓣



2 签署
《知情同意书》



3 各项检测



4 发回医院



2

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04

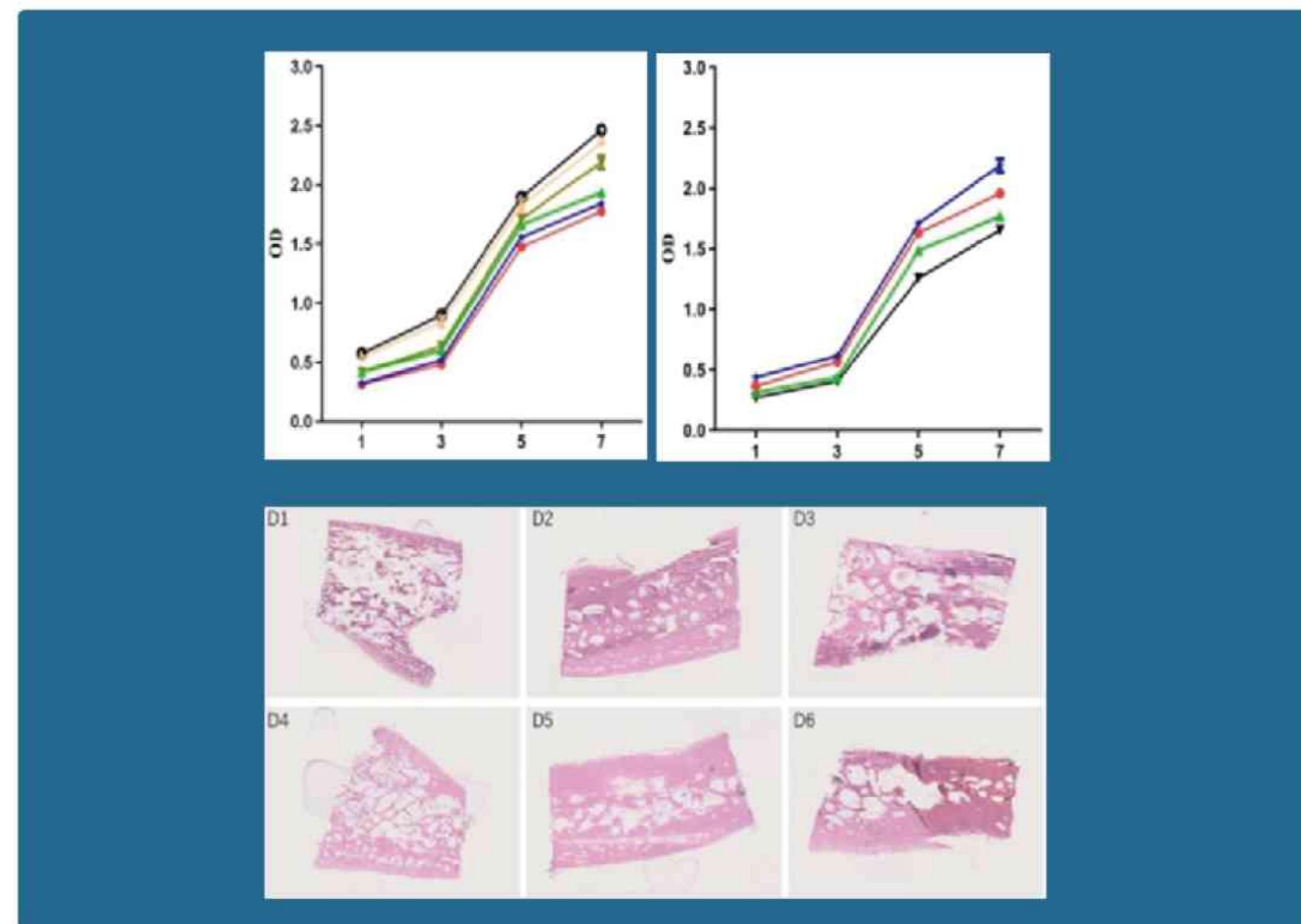
PROJECT INFORMATION

项目资料

采用无菌包装，结合Recran™追溯系统，并提供专业的检测报告，以确保专业处理和储存服务，为用户带来卓越的体验。

Our services encapsulate aseptic packaging, seamlessly integrated with the Recran traceability system, complemented by meticulous professional test reports. This holistic approach ensures unparalleled processing and storage services, ultimately delivering an exceptional user experience.





动物实验

Animal Experiments

上图为动物实验颌骨回植成骨峰值；
下图为动物实验骨瓣病理切片。

The figure depicted above illustrates the peak osteogenic potential of skull gyration in animal experiments, while the image below showcases the pathological section of the bone flap from the same animal experiments.



处理过程记录

Records of the process

上图为专业技术处理前的颌骨骨瓣状态；
下图为专业技术处理后的颌骨骨瓣状态。

The image above showcases the initial state of the skullbone flap prior to undergoing professional technical treatment, whereas the photograph below depicts its condition subsequent to the application of such specialized treatment.

项目推广

Marketing promotion

积极参与多次学术会议；开设《启载大讲堂》
邀请多位神经外科领域的权威专家进行线上讲解；
搭配Recran™系统，实现多元化、数字化管理。

We actively participated in numerous academic conferences, initiating the "Qizai Lecture Hall" which welcomed esteemed neurosurgical experts for insightful online presentations. Leveraging the Recran system, we have achieved a sophisticated level of diversified and digital management.



专家共识

Expert consensus

《创伤性颅骨缺损成形术中国专家共识》专家推荐：“提倡自体颅骨保存再植入”。

The expert recommendation outlined in the "Chinese Expert Consensus on Traumatic Skull Defect Plasty" emphatically advocates for the preservation and subsequent reimplantation of autologous skull fragments.

创伤性颅骨缺损成形术中国专家共识

中华神经外科学会神经创伤专业组 中华创伤学会神经损伤专业组
中国神经外科医师协会神外创伤治疗专家委员会

成人创伤性颅骨缺损(以下简称“颅骨缺损”)是由于创伤性颅骨骨折,开放性颅脑损伤,重型闭合性颅脑创伤合并有治疗性颅脑高压治疗去骨瓣减压术等所致。较大范围的颅骨缺损患者的人工支架植入行彻底清创或其他手术的同时,应用钛金属板一期修复颅骨缺损完全可行,不会增加感染的发生率”。越来越多的临床证据显示,对无明显禁忌证的开放性颅脑损伤者,若合并有需要修补的颅骨

三、颅骨缺损成形术的材料选择
颅骨缺损成形术的主要分为:自体颅骨保存移植和人工材料。
1. 自体颅骨保存移植:自体颅骨因为相对经济,组织反应性小且无需整形,合乎生物降解需求,无排斥反应等优点,仍然被许多神经外科医生所使用^[10]。但是,自体颅骨保存的安全性和效果仍存在争议。自体颅骨保存的基本理念下保存的颅骨(如患者的颞部皮下筋膜层内),可能增加患者的痛苦,保存过程中患者可能出现吸收变薄,骨骼下降,导致术后出现骨松质,塌陷等并发症。而深低温保存的颅骨可能保持其活性,冷冻骨骼基质中的骨引导导管未被激活,修复后骨骼可存活并与周围组织融合。但此方法成本高且耗时长,操作困难。
2. 硅胶模成形术的手术指征
颅骨缺损直径>3cm;颅骨缺损有畸形;颅骨缺损有关节的缺损症状,如头部、面部等症状或心理因素影响生活质量与工作。
3. 硅胶模成形术的手术时机
如大手术禁忌症,在病情允许的情况下,提前早行硅胶模成形术。
四、颅骨缺损成形术的修补材料
目前最常用的修补材料:
1. 颅骨缺损成形术及炎症的防治
术前正确评估颅骨缺损的部位和时机,术中严格无菌操作并预防性应用抗生素,能有效降低

06

VIDEO MANIPULATION

视频操作



为组织修复再生领域贡献力量！

CONTRIBUTE TO THE FIELD OF TISSUE
REPAIR AND REGENERATION !

扫码观看视频



颌骨收取视频

学习专业操作



颌骨回植视频