

# The application of reti-weave-fixation of bone flaps in craniectomy

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## Abstract

There are many kinds of bone flap fixing methods in craniectomy. In recent years, we have been using the reti-weave-fixation method for bone flap with silk thread and have achieved very satisfying results. This method can suspend the dura mater that is located under the bone flap so as to remove the epidural space and prevent the epidural hematoma. Therefore, there is no need to use conventional drainage method underneath the bone flaps. Compared to conventional methods, the method introduced in this article is relatively less complicated and cost effective; furthermore, there are fewer complications after surgery. The follow-up visit shows satisfying appearance without dislocation, sink or deformation in the skull.

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*Keywords:* reti-weave-fixation, craniectomy, bone flaps

## Introduction

There are many kinds of bone flap fixing methods in craniectomy. In recent years, we have been using the reti-weave-fixation [1] method for bone flap with silk thread and have achieved very satisfying results. The method is introduced below.

### 1. Method

During craniectomy, the suture threads of suspending dura mater is reserved; the bone flap is drilled with 1-3 holes, some threads are used to suture across through the dura mater that corresponds to the bone holes, then the bone flap is placed back to the original place. The threads are crossed and tied knots with the threads of suspending dura mater to form a net-like or retiform structure to fix the bone flaps. If there is a bone fracture or comminuted fractures with many pieces of bone flaps, a similar method can be used to suture the dura mater corresponding to the edges of those small bone flaps and then make the net-like structure to fix the bone flaps with the suspending dura mater thread followed by suturing the scalp layer by layer.

### 2. Conclusion

There are two important points associated with the method we have presented. First, this method can suspend the dura

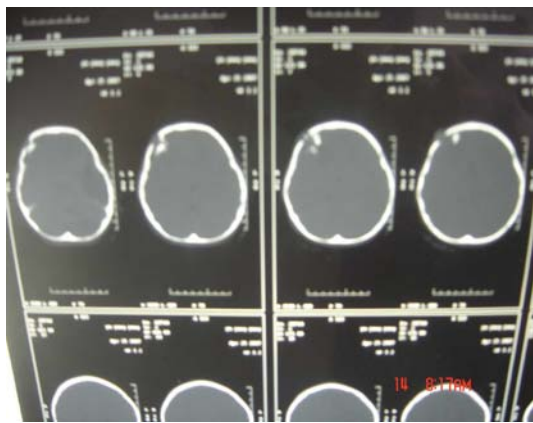
mater that is located under the bone flap so as to remove the epidural space and prevent the epidural hematoma. Therefore, there is no need to use the conventional drainage method underneath the bone flaps. Second, this method is relatively simple and cost effective. The conventional methods of applying the skull lock and other fixation equipment can be very expensive; they can also induce some complications such as foreign body rejection reaction and dislocation. The advantage of our method introduced above—silk thread reti-weave-fixation for bone flaps—is that it is simple and firm. The follow-up visit after surgery shows that the bone flap(s) is (are) fixed firmly, with a very satisfying appearance. There is no dislocation, sink, or deformity in the skull.

There are numbers of patients that experienced craniectomy again six months to two years after the first surgery due to a variety of reasons; we found that those reti-weave-fixation bone flaps healed well with the edge fiber of bone window or bony tissue. This method can be applied widely in clinics; it can be used for most of the craniectomy if the skull bone flaps need to be reserved. This method is especially easily to gain acceptance and utilized in hospitals in a basic level in China.

### References

- [1] The term “网织固定 Wang Zhi Gu Ding reti-weave-fixation” is from the book of “颅脑创伤临床救治指南—Clinic Guidelines for the Management of Head Injury” by Jiang, Ji Yao, Ph.D., M.D., 江基尧, Zhu Cheng, M.D. 朱诚 and Luo, Qi Zhong M.D. 罗其中 The Second Military Medical University Press, 第二军医大学出版社 April, 2003 P31. ISBN 7-81060-298-5/R.217

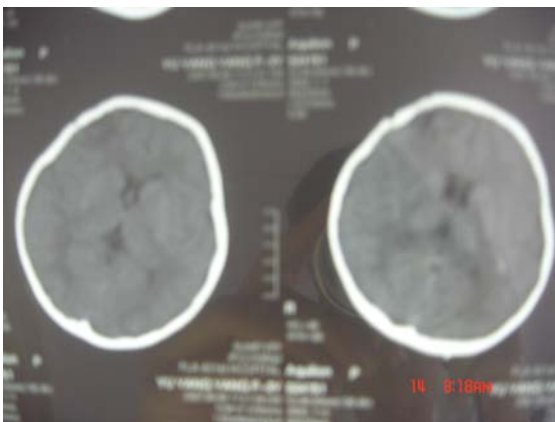
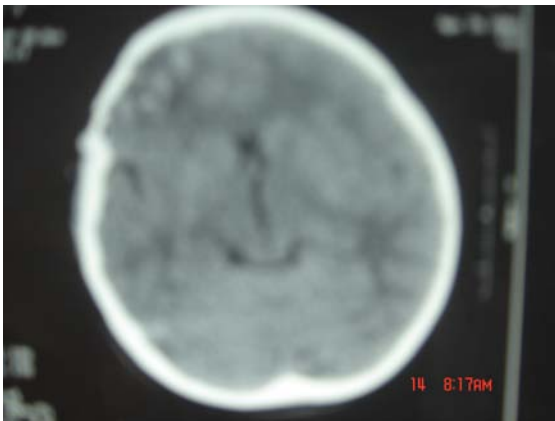
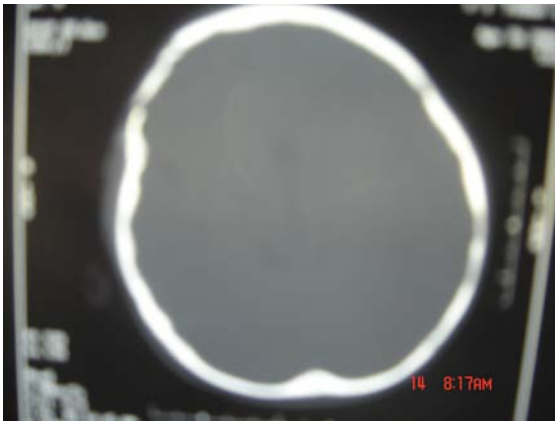
Figures 1a,b,c,d. Before surgery of the comminuted fracture for a 3-year-old boy



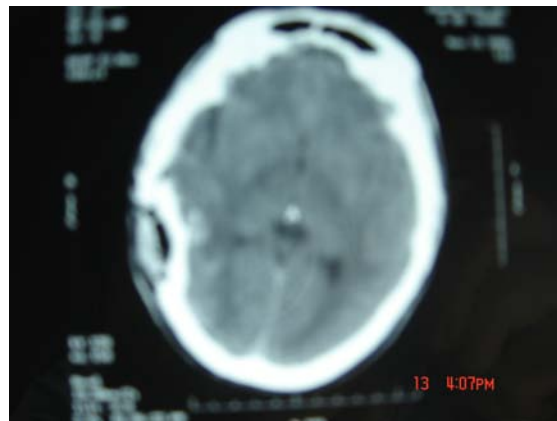
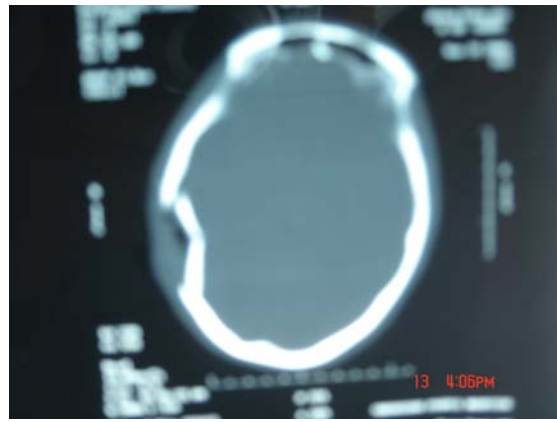
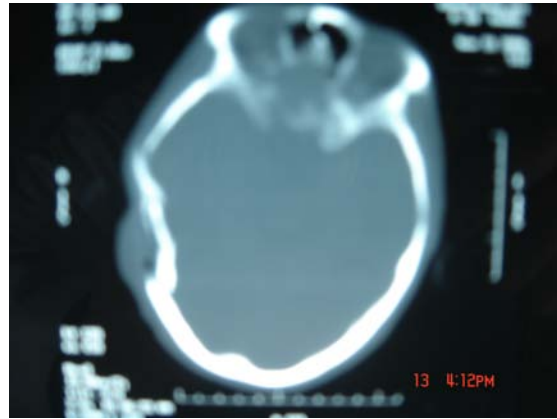
Figures 2a,b,c,d. During surgery



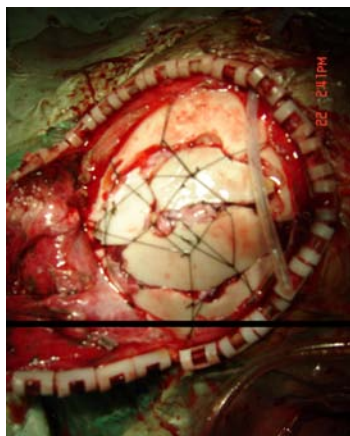
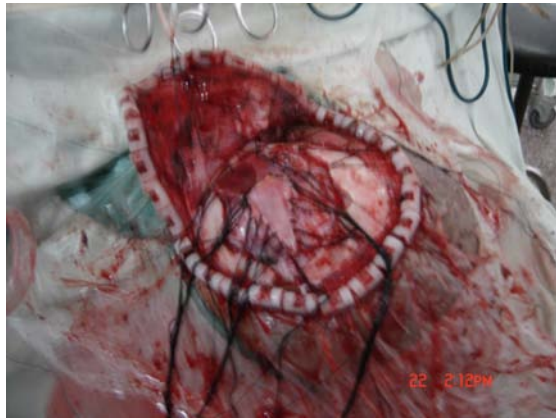
Figures 3a,b,c,d. After surgery



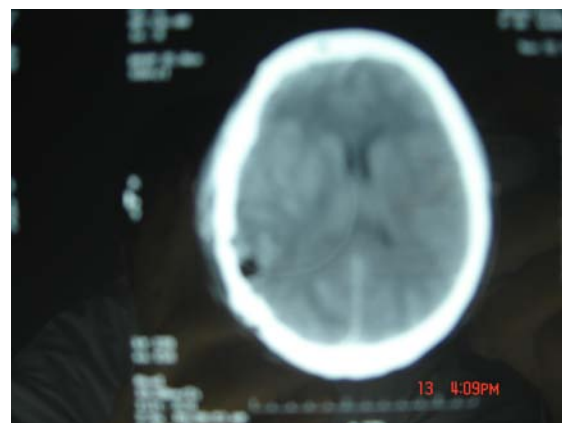
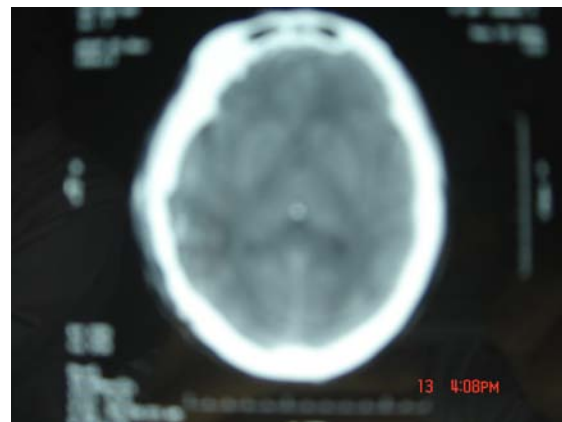
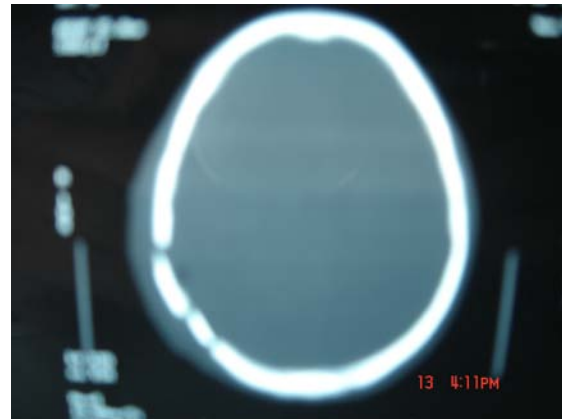
Figures 4a,b,c,d. Before surgery of comminuted fracture in adult



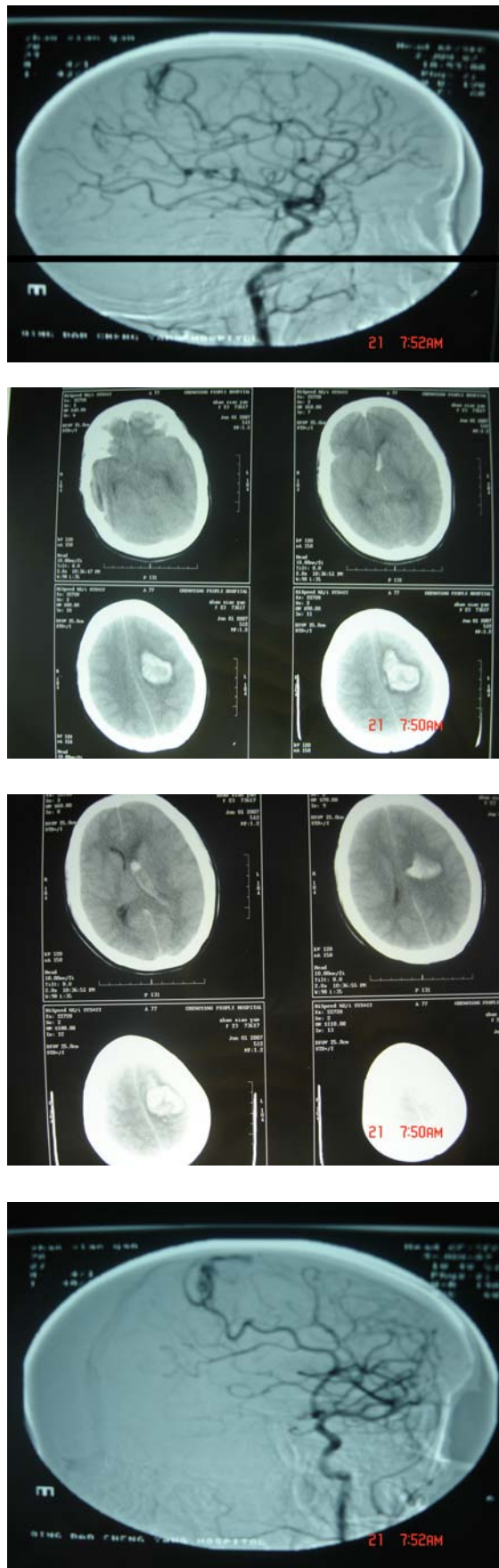
Figures 5a,b,c,d. During surgery



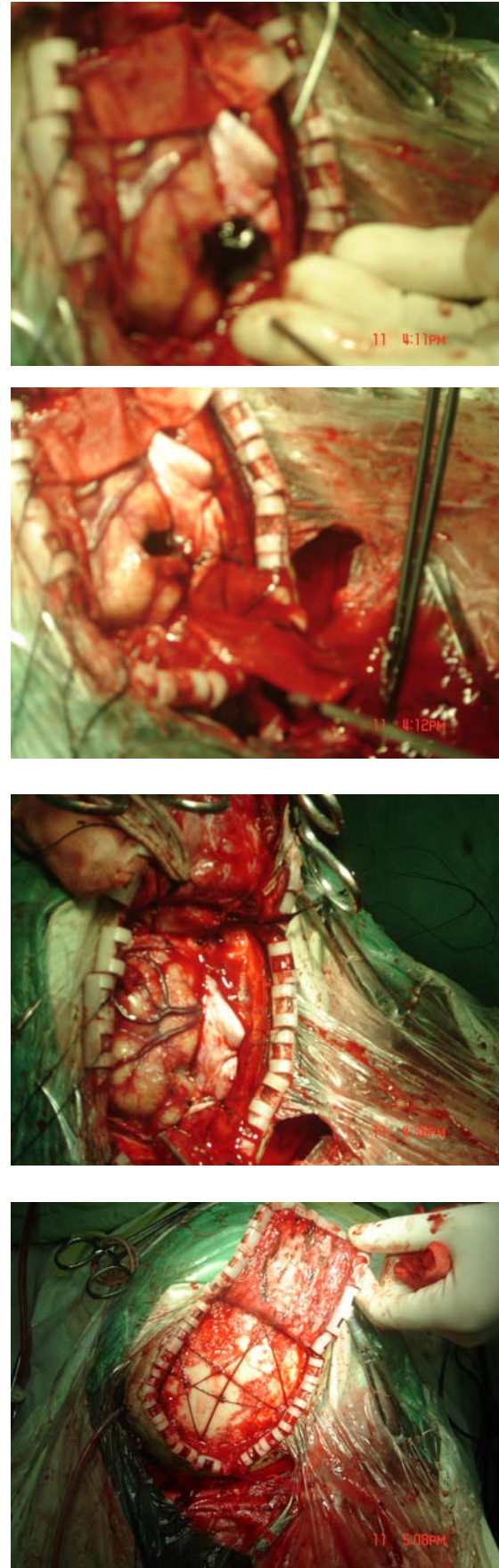
Figures 6a,b,c,d. After surgery



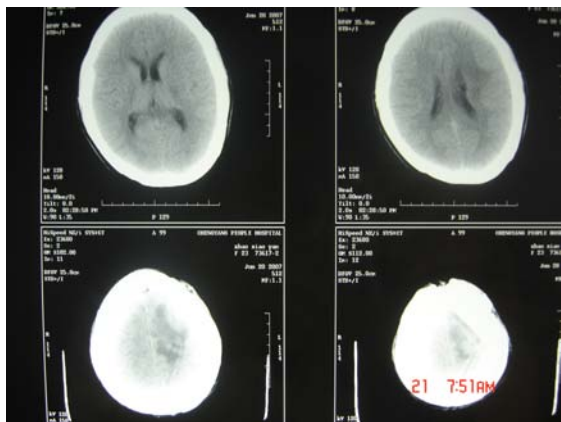
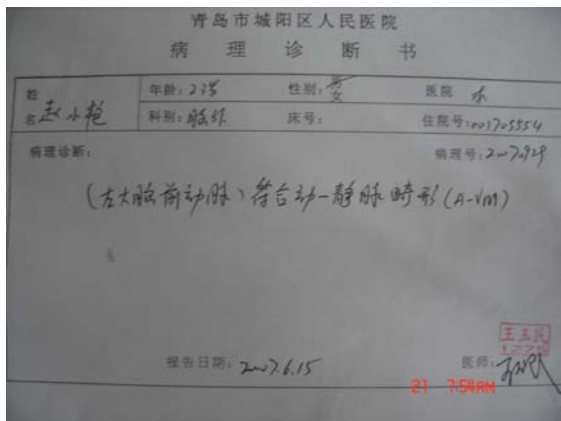
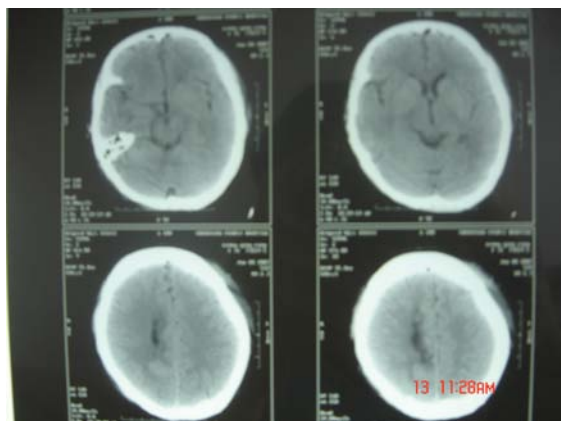
Figures 7a,b,c,d. Before surgery of Parietal AVM



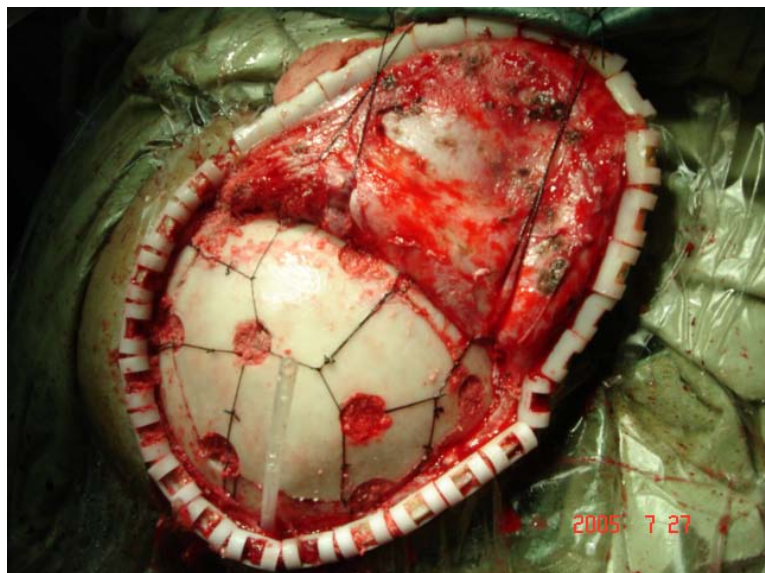
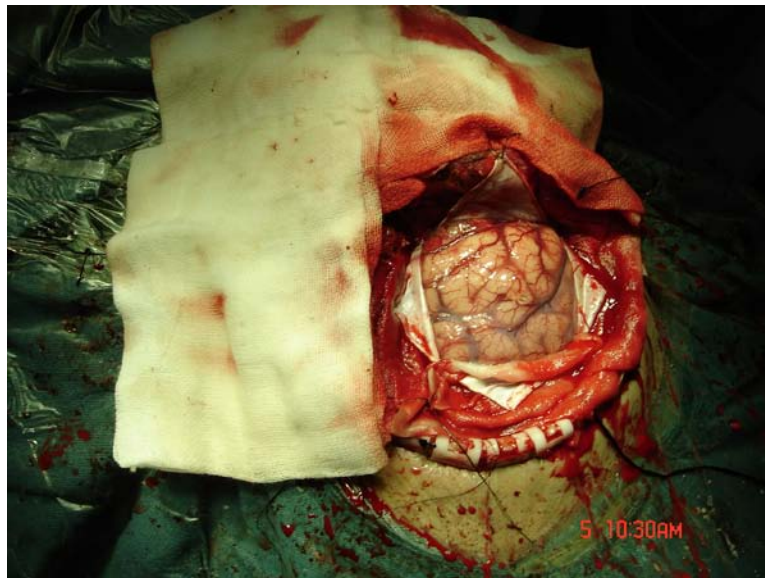
Figures 8a,b,c,d. During surgery



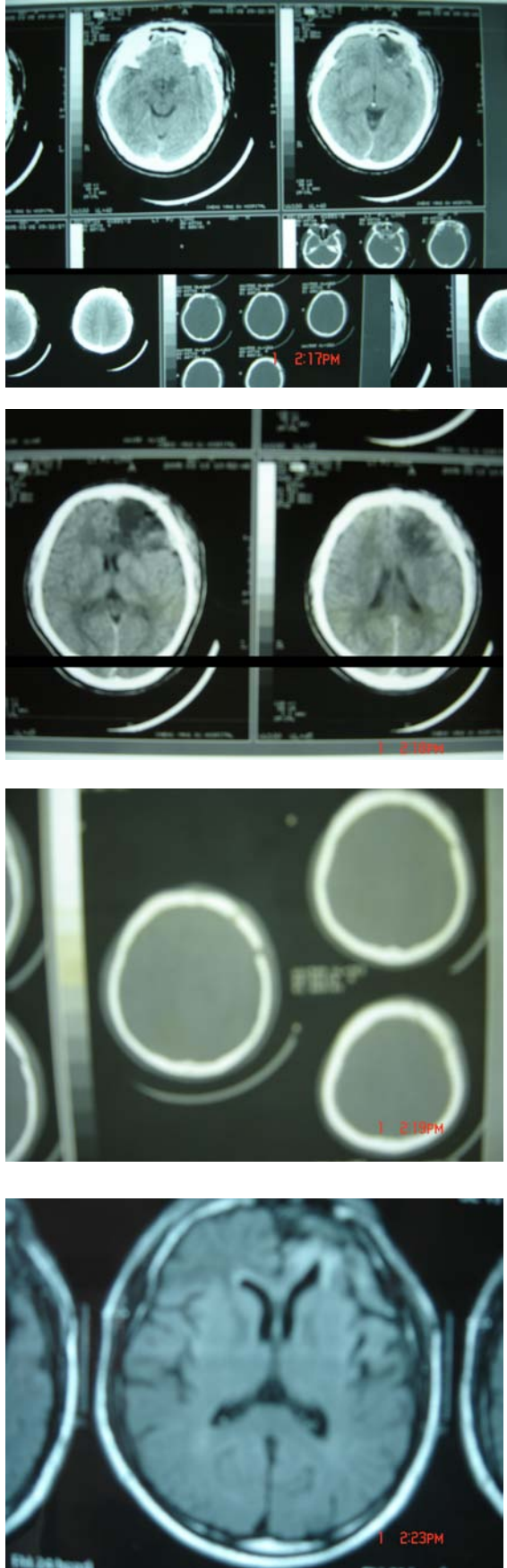
Figures 9a,b,c,d. After surgery



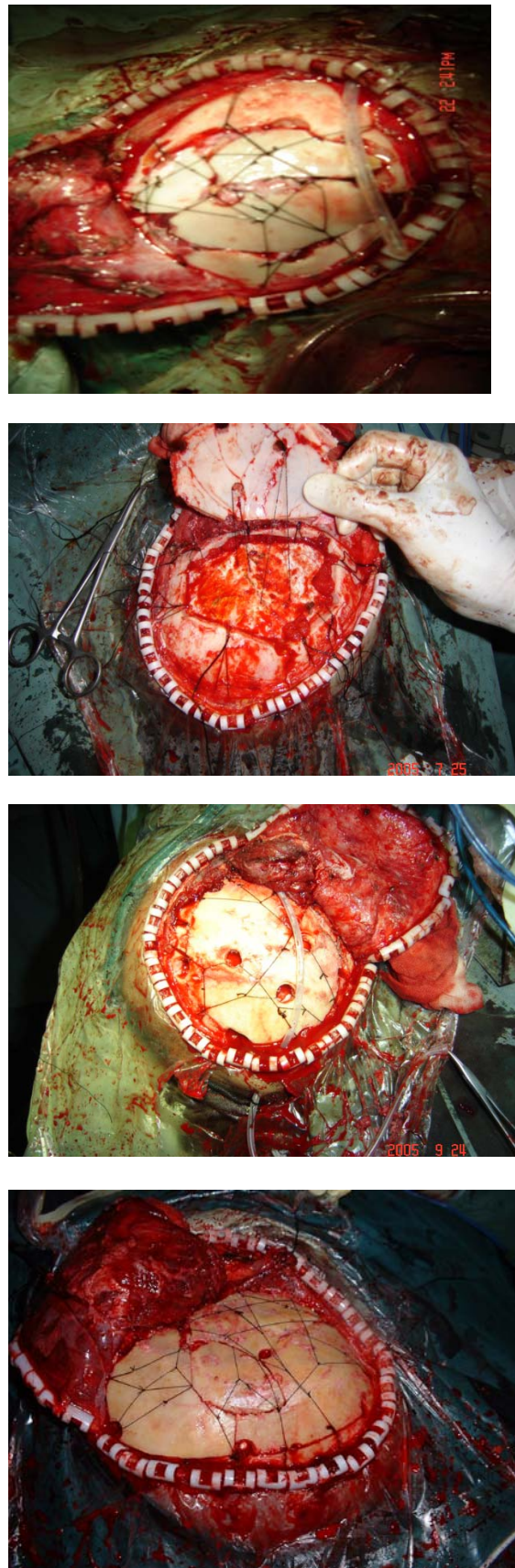
Figures 10a,b. The management of frontal lobe colloma



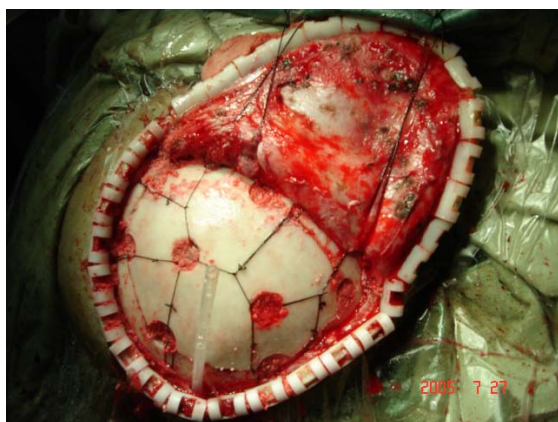
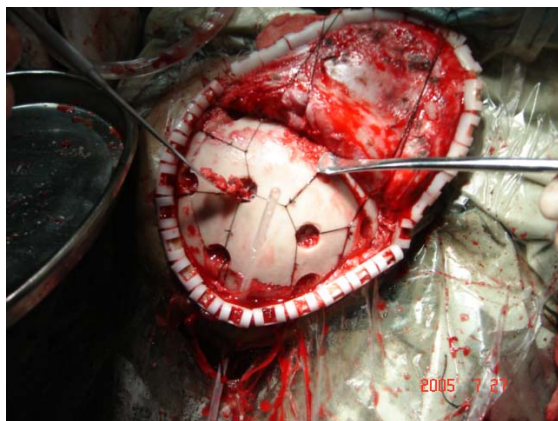
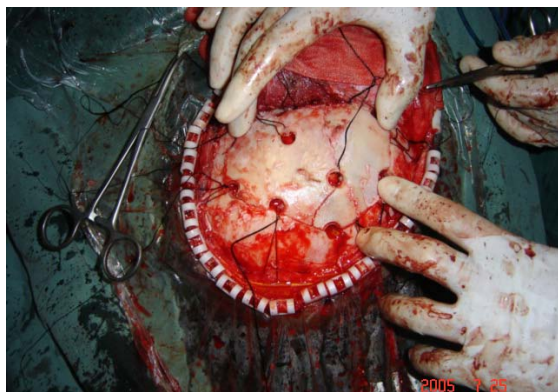
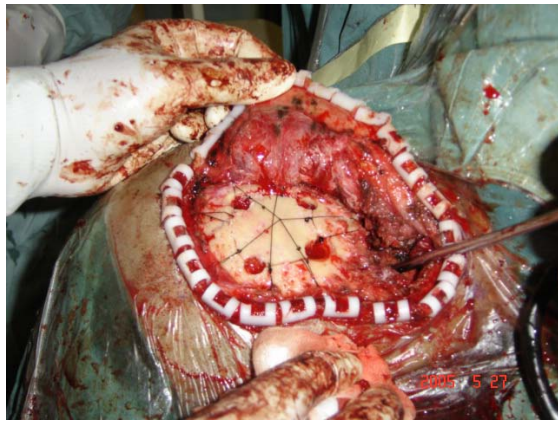
Figures 11a,b,c,d. Two years after surgery



Figures 12a,b,c,d. The management of frontal-temporal bone flaps



Figures 13a,b,c,d. The management of temples bone flaps



Figures 14a, b. The Management of Tempal-Parietal Bone Flaps

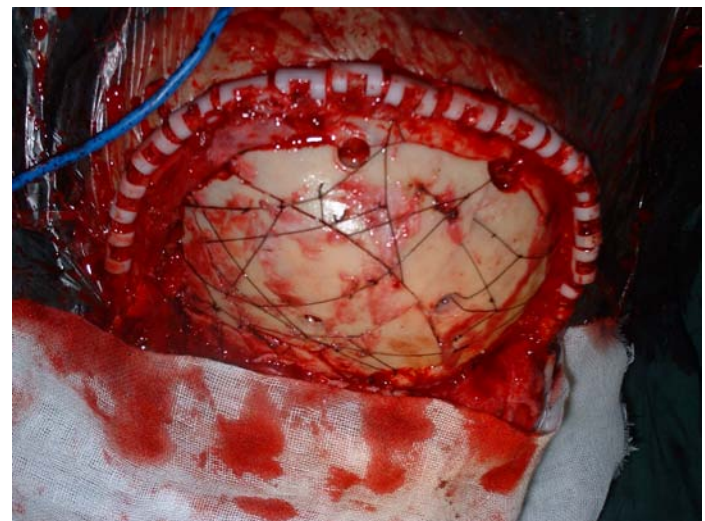
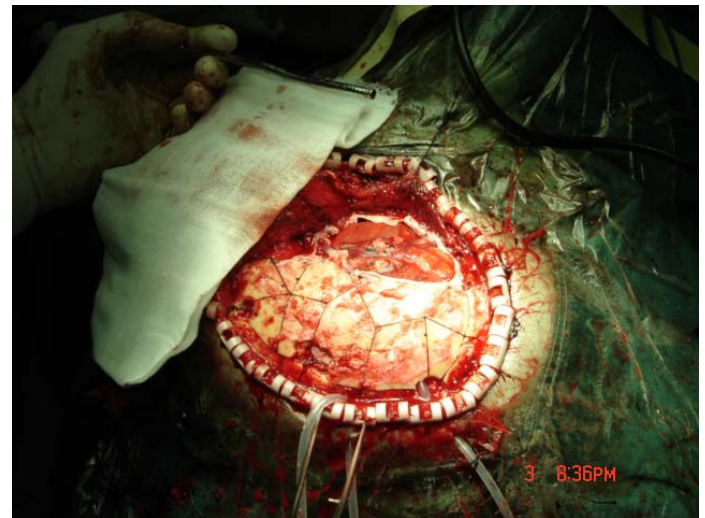
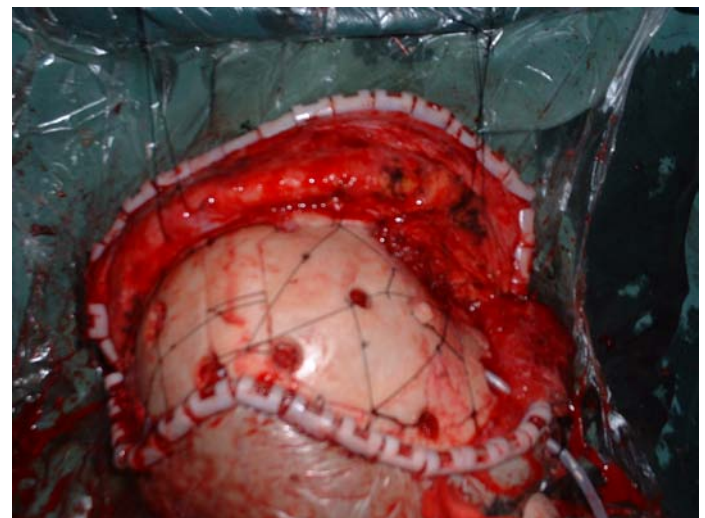
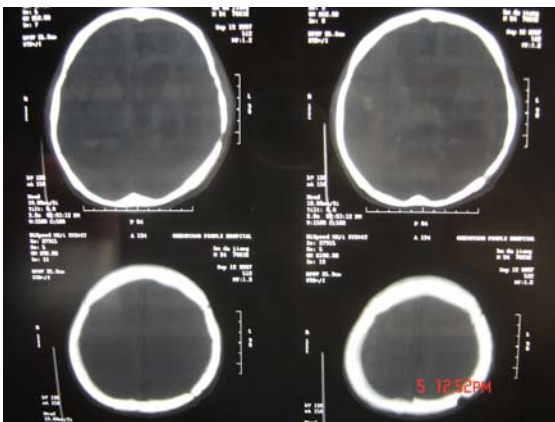
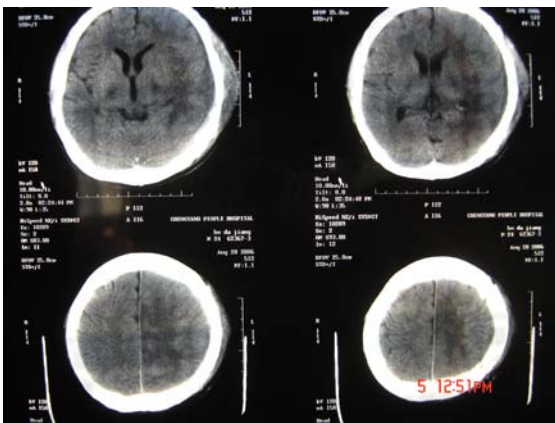


Figure 15. The Management of Frontal Bone Flaps





Figures 16a,b,c,d. Trace the results of Mr. Hu 15 months after surgery



Figures 17a,b,c,d. Trace the results of Mr. Zhang two years and six months after surgery



Figures 18a,b,c,d. Trace the results of Mr. Li three years and seven months after surgery



Figures 19a,b,c. Trace the results of Mr. Li two years and eight months after colloma surgery

