วารสารแพทย์เขต ๔ ปีที่ ๒๐ ฉบับที่ ๓ ก.ค.-ก.ย. ๒๕๔๔ Reg 4 Med J Vol.20 No.3 July.-Sep. 2001

รายงานผู้ป่วย

A Case Report

Replantation of fingers in Potharam Hospital

การผ่าตัดต่อนิ้วมือในโรงพยาบาลโพธาราม

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กลุ่มงานศัลยกรรมกระดูก โรงพยาบาลโพธาราม

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ABSTRACT

During November 1996 and January 1999, replantation of finger was done for 12 patients, 17 fingers, age range from 2 to 63 years old. There were 4 cases, 4 fingers of complete amputation and 8 cases, 13 fingers of incomplete amputation.

Result of treatment ; 8 cases, 11 fingers were succeeded, but 4 cases, 6 fingers were failed. The percentage of success was 66.6%. In the case of complete amputation, success rate was 50% but for incomplete amputation it was 75%. Average time for operation per one finger in the case of complete amputation was 3 hr 26 minutes and for incomplete amputation was 1 hr 53 minutes.

8 patients who were success in replantation were followed up for 6 to 38 months. By using Ch'En Criteria to evaluate the result of treatment ; 6 cases were grade II, 1 case was grade III and another 1 case was grade IV. Seven patients were satisfied of the result.

From this study, majority of the cases were incomplete amputation which had better result than complete amputation and also the shorter operative time.

บทคัดย่อ

ตั้งแต่เดือนพฤศจิกายน 2539 ถึงมกราคม 2542 ผู้ป่วยจำนวน 12 ราย อายุตั้งแต่ 2-63 ปี ได้รับการผ่าตัดต่อนิ้วทั้งสิ้น 17 นิ้ว ในจำนวนนี้เป็นนิ้วขาดทั้งนิ้ว 4 ราย 4 นิ้ว และเป็นนิ้วขาดบางส่วน 8 ราย 13 นิ้ว

ผลการรักษาพบว่า 8 ราย 11 นิ้ว ได้ผลสำเร็จดี แต่อีก 4 ราย 6 นิ้วประสบความล้มเหลว แสดงว่าประสบความสำเร็จ 66.6% ในกรณีของนิ้วขาดทั้งนิ้ว ผลสำเร็จได้เพียง 50% ส่วนกรณีนิ้วขาดบางส่วน สำเร็จถึง 75% เวลาในการผ่าตัดโดยเฉลี่ยสำหรับนิ้วขาดทั้งนิ้ว คือ 3 ชั่วโมง 26 นาที สำหรับนิ้วขาดบางส่วนคือ 1 ชั่วโมง 53 นาที

จากการติดตามประเมินผลผู้ป่วย 8 ราย ที่ประสบผลสำเร็จในการผ่าตัดโดยใช้ Ch'En Criteria พบว่า 6 ราย อยู่ในระดับดี 1 รายอยู่ในระดับพอใช้ และอีก 1 ราย อยู่ในระดับพิการ ผู้ป่วย 7 คน รู้สึกพอใจต่อผลการรักษา

จากการศึกษาครั้งนี้ พบว่าการบาดเจ็บของผู้ป่วยส่วนใหญ่จะเป็นแบบนิ้วขาดบางส่วน ซึ่งผลการรักษาได้ผลดีกว่าแบบขาดทั้งนิ้ว และเวลาผ่าตัดก็น้อยกว่า

Introduction

In the present time, we can find more and more cases of traumatic finger amputation. Because of development of industry, the workers use machines in the process of production, so, accident occur more often than before. Another cause of finger amputation is traffic accident. Reattachment of the amputated part has developed for many years. The success rate is depended on several factors[1] such as, good surgical team, well - trained doctor, cause of amputation, level of amputation, type of amputation, etc. This procedure is time consuming and difficult, so it is not interested by general orthopedist, which is a reason that some of the patients loss their fingers unfortunately

Material and Method

The data of this retrospective paper is collected from November 1996 to January 1999. There were 12 patients 17 fingers which were operated by microsurgery. There are 9 males and 3 females, aging from 2 to 63 years old.

Operation

Standard technique of microsurgery was used for all of these cases. The operative sequence[2] of digital replantation is as following

Table 1. Cause of injury

	Cause of injury	Cases	Fingers
1	Mechanical accident	9	13
2	Traffic accident	2	3
3	Orthers	1	1

Table 2. Type of injury

	Type of injury	Cases	Fingers
1	Complete amputation	4	4
2	Incomplete amputation	8	13

Table 3. Level of injury

	Level of injury	Fingers
1	Distal to FDS tendon insertion	11
2	Proximal to FDS tendon insertion	6

1. Locate and tag the vessels and nerves.
2. Debridement
3. Shorten and fix the bone
4. Repair the extensor tendons
5. Repair the flexor tendons
6. Anastomose the arteries
7. Repair the nerves
8. Anastomose the veins
9. Obtain skin coverage

Post-operative care

1. Bulky dressing of hand
2. Elbow and hand rest on bed
3. Maintain comfortably warm patient's room
4. ASA 300 mg tid pc
5. Morphine 10 mg IM prn
6. Antibiotics are administered 1 week

Evaluation

Ch'En criteria was used to evaluate the function of the operated fingers which were survived.

Ch'En criteria[3]

Grade I
- Original work
- ROM > 60% of normal
- Sensation - Complete
- Muscle power grade 4-5

Grade II
- Suitable work
- ROM 0-60%
- Sensation - nearly complete
- Muscle power grade 3-4

Grade III
- Daily life
- ROM 30-40%
- Sensation partial recovery
- Muscle power grade 3

Grade IV
- no useable function

Results

Table 4. Result of operation

	Cases	Fingers
Total of operation	12	17
Success of operation	8	11
Failure of operation	4	6
Success rate	= 66.6%	

Table 5. Result of operation for complete amputation

	Cases	Fingers
Total complete amputation	4	4
Success of operation	2	2
Failure of operation	2	2
Success rate for complete amputation	= 50%	

Table 6. Result of operation for incomplete amputation

	Cases	Fingers
Total incomplete amputation	8	13
Success of operation	6	10
Failure of operation	2	3
Success rate for incomplete amputation	= 75%	

Table 7. Average time of operation for 1 finger

1) for complete amputation	= 3 hours	26 minutes
2) for incomplete amputation	= 1 hour	53 minutes

Table 8. Function of survived fingers by Ch'En criteria

Grade II	6 cases
Grade III	1 case
Grade IV	1 case

Discussion

Replantation is one of the difficult and time consuming procedure. The surgeon who want to be successful in this procedure must be patient, well-trainned, and has a good microsurgery team. Revascularization[4] is another procedure which is much easier than replantation. It is defined as reconstructing a limb that has been incomplete amputated. Although revascularization is easier but the importance is equal to replantation especially in finger amputation because patients will loss their fingers if revascularization is failed.

Majority of cases from this paper are incomplete amputation, success rate of operation for these cases is 75%. Average time of operation per one finger is 1 hour and 53 minutes. Comparing to success rate in center of microsurgery which is about 50-95%,[5] the result of this paper should be acceptable. Level of injury is also inportant. Amputation distal to insertion of flexor digitorum superficialis will get good result.[6] From this paper majority of cases were injured at this level which is the reason why the result of most of the success fingers are good by Ch'En criteria

Summary

Majority of cases in this paper are incomplete amputation from factories. Technique of reattachment is revascularization which is much easier than replantation and the result is good. This paper

might convince general orthopedist who work around the area where there are a lot of factories to enjoy doing this kind of operation more and more. The better result will go along with the experience.

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