"I made myself all things to all men" (1 Cor. 9:22)
" 我為一切人成為一切" (格前 9:22)

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聖保祿醫院
St. Paul's Hospital

NEWSLETTER 院訊

Medical Information
醫療資訊

An Easy Method for Minimally Invasive Achilles Tendon Repair

INTRODUCTION

Acute Achilles tendon rupture is not uncommon in recreational sport injury in the middle age group. Patients typically present with a sudden sensation of being kicked over the posterior heel during the sport. Traditional open Achilles tendon repair[3] involves a long posterior leg skin incision measuring about 20 centimeters. It is not rare to see post-operative complications such as wound edge necrosis, gapping, or sural nerve injury etc. Minimally invasive Achilles tendon repair has therefore gained popularity in recent years. With new techniques, the surgical incisions can be down to about 2 centimeters. This report describes a simple minimally invasive technique in Achilles tendon repair that needs no special instrument. A universally available sponge holding forceps is used to perform the primary Achilles tendon repair. The result is the same as that using special instrument. This method similarly gives a smaller skin incision, a quicker repair time, and cost effectively to produce same clinical result as open Achilles tendon repair.

SURGICAL TECHNIQUE

The patient undergoes spinal or general anaesthsia and is put on prone position with both legs supported with pillow. Pneumatic tourniquet with pressure of 250mmHg is used over the upper thigh of injured leg. This relatively low pneumatic pressure is adequate to give a bloodless surgical field and it also helps in reducing post operative leg muscle pain. Typically a gap will be palpable at the rupture site. This is what we refer as the "thumb sign" (Fig. 1), which gives us much information. Firstly, a gap indicates a complete rupture of the tendon. Secondly, the gap that is just wider than the width of thumb (eg. 2.5cm) indicates no significant retraction of the rupture ends. Thirdly, the rupture ends would not be too flimsy that makes suture anchoring difficult. The instruments needed are a sponge holding forceps, a stainless steel needle with eyelet and three pairs of Haemostate forceps for holding three pairs of suture ends (Fig. 2).

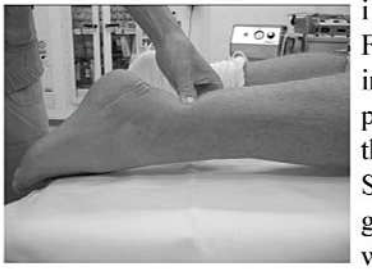

Fig 1. The thumb sign.

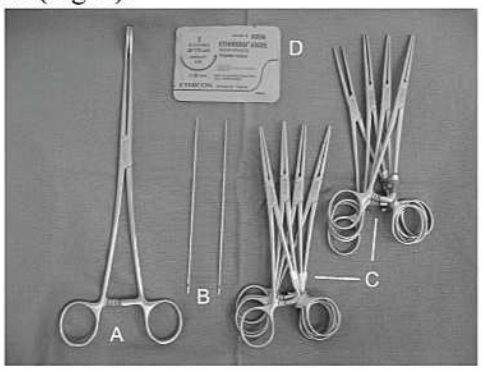

Fig 2. All instruments needed, A: Sponge holding forceps, B: Stainless steel needles with eyelet, C: Haemostate forceps, D: Non-absorbable sutures

A 2 centimeters paramedian skin incision is made just over the palpable gap. Longitudinal incision was then made over the paratenon. Any haematoma present is evacuated. Both proximal and distal rupture ends were retrieved using a Kochler forceps. A surgical sponge holding forceps is inserted through the incision wound, staying along the two sides of the Achilles tendon but inside the paratenon. The tip of the sponge holding forceps would be palpable percutaneously when the forceps is opened (Fig 3.). With opening and closing maneuver of the forceps, the substance of Achilles tendon is then grasped between the forceps tips. A non-absorbable suture would be passed using a stainless needle with an eyelet. Since the holes of the forceps tip are large, the needle is

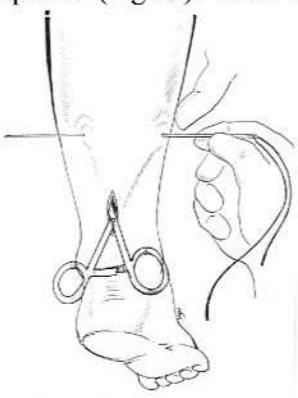

Fig 3.The tip of sponge forceps is palpated, needle is inserted to the palpable hole in a horizontal direction.

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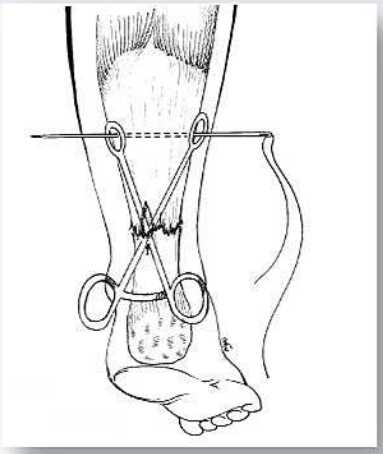

Fig 4.The two holes of the sponge forceps are along the two sides of the Achilles tendon inside the paratenon.

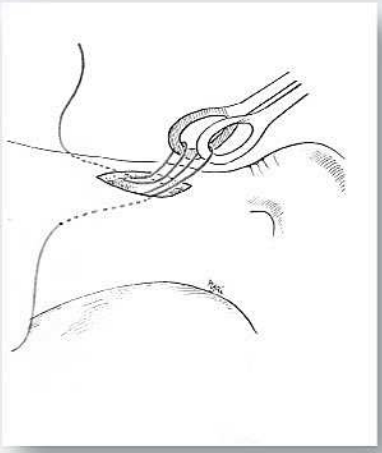

Fig 5.Nonabsorbable sutures are retrieved with the sponge holding forceps.

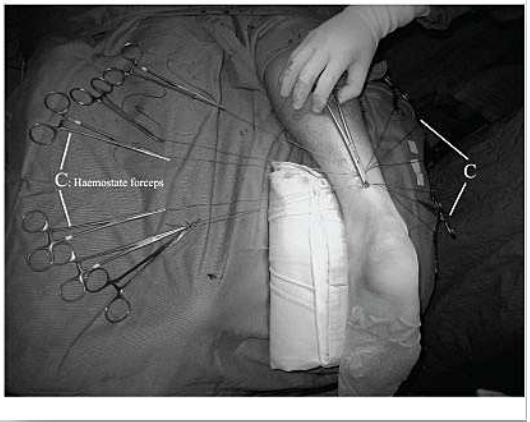

Fig 6.Three pairs of the suture ends are held by different colour labeled Haemostate forceps to avoid mix up

unlikely to miss the opposite hole (Fig 4.). Three non-absorbable sutures would be passed with 1 centimeter separation each in the same manner. With the forceps placed inside the paratenon, all sutures can be chased and guided out from the skin incision site (Fig 5.). The tension of each suture is then tested by a longitudinal pull. Then we switch and pass three non-absorbable sutures in the distal rupture ends in the same manner. Three pairs of the suture ends are held by different colour labeled Haemostate forceps to avoid mix up (Fig 6.). The three pairs of non-absorbable suture loops are then tied. Paratenon is then repaired with continuous 2.O absorbable suture. Skin is closed with subcuticular 3.O absorbable suture. The operated leg is immediately rested in dorsal ankle slab with the ankle in gravity plantar flexion. The mean total operation time is about 35 minutes.

POST-OP REHABILITATION

Post-operatively, patient will go through a quicker rehabilitation program[1]. In initial two weeks, patient will be on non-weight bearing walking with a plantar flexion splint on. In the third to fourth week, patient start partial weight bearing with a wedged heel walking sole. The ankle of plantar flexion is gradually brought back to neutral. By the eighth week, patient is on full weight bearing walking and off splint, and then progressive training of running activities.

DISCUSSIONS

In the literature a lot of percutaneous techniques in minimally invasive Achilles tendon repair have been mentioned. One drawback of most of these techniques is that knots are generally tied "blindly", which may include the subcutaneous nerve bundles. This "all inside technique" technique basically avoids the complication of tying up the sural nerve branches. Moreover, it is reported difficult to insert the bulky instrument along the distal heel cord stump. This is especially true in Asian population, who has smaller legs. There is only one standard size for all cases. The difficulty becomes more significant as the foot is put into plantar flexion. We really need a slimmer instrument to accommodate the tilted distal stump. Sponge holding forceps technique provides a simple, easy and cost effective way of acute Achilles tendon repair. Apart from a stainless steel needle, you need no extra special instrument from simple surgical set. With the large hole over the tip of sponge forceps (Fig 7.), we need no image guidance for the accurate insertion of the needle. We are able to further reduce the skin incision wound to 2 centimeters (Fig 8.).

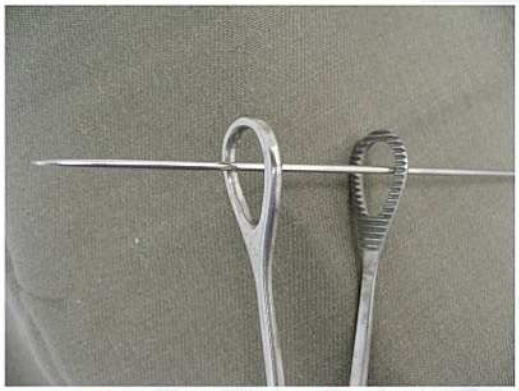

Fig 7.With the large hole over the tip of the sponge holding forceps, it is easy to pass needle through the opposite hole.

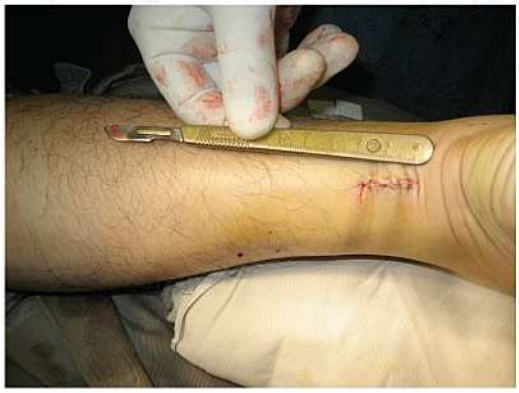

Fig 8.Smaller skin incision.

CONCLUSIONS

The sponge holding forceps technique we described provides a simple technique using a simple instrument that is available in all surgical set, for repair of the acute rupture of the Achilles tendon with a result comparable to open repair. The slim, non-traumatic shape of forceps makes it an easy and safe instrument in the repair of Achilles tendon.

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Dr. William Y. H. Ngai
Specialist in Orthopaedic Surgery

Hosptial updates 醫院動向

St. Paul's Hospital —— Blessing for Cardiac Centre

Our Hospital celebrated the moving of its Cardiac Centre into 5/F. of Block A on 27th March 2010 (Saturday). To mark this memorable event, Rev. Fr. Chow King-fun of St. Margaret Church inaugurated the blessing ceremony of the centre at 9:00 a.m. Shortly after then, the directors of the centre and members of the hospital management jointly celebrated the cutting of roasted-pig, which symbolized a significant milestone of our hospital redevelopment.

New Children Ward on 8/F. of Block A

Welcome to our brand new Children Ward. This is on the 8th floor of our new block. We have 4 private rooms and 6 general ward setting. All of the general ward are 2-bedded. Yes, every room is accommodating 2 patients at most. This provides a quiet environment for every patient and markedly reduces chance of cross-infection among kids in our ward. Also we are actively considering constructing high partitions between the two beds in these rooms. This will further create a calming and private atmosphere for children and their families.

Panoramic windows in the rooms allow abundance of natural light, providing a healing environment. All rooms are furnished with sofa beds to enable parents to sleep besides their children comfortably.

Every bed is equipped with an individual bedside terminal with internet access, TV entertainment, hospital information and services. Hardworking kids may finish their homework online even before discharge from the hospital.

We have a dedicated, spacious room for neonatal care. Brand new incubators are in service. At most 4 neonates can be taken care at any one time. A big observation window basically connects the interior of this neonatal room with the hallway and the nursing counter, enabling staff to directly monitor the babies with ease. Mothers can use the comfortable sofas within the room for breast feeding.

Our Colleagues

Besides all the very fine hardware, our very strong and experienced nursing team in Children Ward is always ready to deliver the highest level of care.

Dr. Ng Cheuk
Specialist in Paediatrics

2009 Research Output Prize of The University of Hong Kong

We are pleased to announce that Dr. Yuen Siu Tsan, Department of Pathology, St. Paul's Hospital, Prof. Leung Suet Yi and their research team have received the Research Output Prize of the University of Hong Kong in 2009 in respect of the article : Heritable somatic methylation and inactivation of MSH2 in families with Lynch syndrome due to deletion of the 3' exons of TACSTD1 in Nature Genetics 2009 Jan;41(1):112-7.

All along, it is believed that mutation for hereditary syndromes usually lies within the disease-causing gene itself. Thus genetic testing only studies the disease-causing gene and does not cover the neighbouring genes. In the recent discovery by the team led by Dr. Yuen Siu Tsan and Prof. Leung Suet Yi, in collaboration with a Dutch group, it was found that in families with a deletion mutation resulting in removing the transcriptional termination signal of a neighbouring gene can cause heritable methylation of the downstream disease-causing gene and hereditary cancer syndrome in humans. This is the world's first report of such novel mechanism.

Impact of the Study

1. This finding has revolutionized the way genetic diagnosis on hereditary disease is performed. Genetic tests should not be limited to examining the disease-causing gene, but should also be extended to study the termination signals of the neighbouring genes. The study will help many families with different types of hereditary diseases to uncover the disease-causing mutation and improved the success rate of prevention and treatment.
2. The study illustrates a new mechanism causing gene methylation and silencing. Since abnormal methylation is closely linked to cancer development, our findings will be useful for developing new anti-cancer drugs aiming at changing the methylation patterns of cells.

Dr. Yuen and Prof. Leung are running a charitable (free of charge) genetic diagnosis service for hereditary colorectal cancer families. St. Paul's Hospital has supported Dr. Yuen and their team to establish the Hereditary Gastrointestinal Cancer Registry based at St. Paul's Hospital. We congratulate Dr. Yuen and their research team on their great discovery.

Hospital activities 醫院活動

2010年四旬期退省活動後記

醫院四旬期退省活動已於三月二十三日在赤柱瑪利諾神父修院舉行，時間由上午九時至下午四時，出席人數共有38位。

由梁達材神父帶領朝拜聖體，其講道熾熱了我們的心，發顯孝愛聖母及愛主愛人之情，同時也更新了我們的信仰。在默禱中醒悟自己的過犯並設機會待我們領受修和聖事。在拜苦路禮儀中，我們體驗基督苦難、聖死與光榮復活的救恩。在活動中我們彼此分享自己的得著及互相勉勵。

到達黃昏時候，大家懷著感恩的心情一同拍照留念，結束當日的活動。祝願未有參與的弟兄姊妹們都能分享我們的平安和得著。

天主保佑!

牧靈部

Introduction of new faces
員工動態

Hello everybody, my name is Stella Wong. I joined St. Paul's Hospital as Senior Nursing Officer on 18 January 2010.

I started my nursing career at 1982 in HK Sanatorium and Hospital. Then, I worked in Intensive Care Unit (ICU) for over 20 years. In 2006, I was transferred to the Nursing Administration Department for handling incidents and sentinel events, quality and safety management, clinical supervision on Skin Centre, Heart Centre, Renal Centre, ICU and HDU.

After the completion of MBA (Hospital Management) in 2007, I started a new challenge in Health Informatics and project management. I was seconded to IT Department as a Clinical Advisor and had successfully deployed the ERP System in my previous hospital.

I hope my experience can facilitate my work in here and I look forward to meeting and working with you.

As per editorial arrangement, the April's Newsletter was combined its publishment with May's Newsletter.