SHOULDER SUB-ACROMIAL DECOMPRESSION

You have been diagnosed with impingement syndrome and possible tears in the rotator cuff of your shoulder. A decision has been made to proceed with surgical treatment for these two conditions.

WHAT IS THE ROTATOR CUFF IN THE SHOULDER

The rotator cuff is a group of flat tendons, which fuse together and surround the front, back and top of the shoulder joint like a cuff on a shirt's sleeve. These tendons are connected individually to short, but very important muscles that originate from the scapular (shoulder blade). When the muscles contract, they pull on the rotator cuff tendon causing the shoulder to rotate upwards, inwards or outwards, hence the name rotator cuff.

WHAT IS IMPINGEMENT SYNDROME?

The uppermost tendon of the rotator cuff, the supraspinatus tendon, passes beneath the bone on top of the shoulder, called the acromion. In some people, the space between the undersurface of the acromion and the top of the humeral head is quite narrow. The rotator cuff tendon and the adherent bursa, or lubricating sac, could therefore be pinched when the arm is raised into a forward position. With repetitive impingement, the tendon and bursa can become inflammed and swollen, increasing in size and causing the painful situation known as (chronic impingement syndrome).

HOW DOES IMPINGEMENT SYNDROME RELATE TO ROTATOR CUFF DISEASE?

When the rotator cuff tendon and its overlying bursa become inflammed and swollen with impingement syndrome, the tendon may begin to break down near its attachment on the humerus (arm bone), with continued impingement, the tendon is progressively damaged and finally, may tear completely away from the bone.

WHY DO SOME PEOPLE DEVELOP IMPINGEMENT AND ROTATOR CUFF DISEASE WHEN OTHERS DO NOT?

There are many factors that may pre-dispose one person to impingement and rotator cuff problems. The most common is the shape and thickness of the acromion (the bone forming the roof of the shoulder). If the acromion has a bone spur on the front edge it is more likely to impinge on the rotator cuff when the arm is elevated forward. Activities which involve forward elevation of the arm may put an individual at high risk for rotator cuff injury. Sometimes the muscles of the shoulder may become imbalanced by injury or atrophy, and imbalance can cause the shoulder to move forward with certain activities which again may cause impingement.

HOSPITAL ADMISSION

You will be admitted to hospital on the day of surgery. Your anaesthetist will examine you on the ward and discuss the anaesthetic issues with you.

THE OPERATION

You will be taken to the operating theatre before your surgery and after a suitable anaesthetic has taken place, a 5 to 12 linear skin cut will be placed on the top of your shoulder. The rough protruding part of your acromion that is causing the impingement problem will be removed. This will enlarge the space for the rotator cuff that glides underneath your acromion. Also, if the bursa is thickened and inflammed it will/ be excised. One of the ligaments in this area, known as the coraco-acromial ligament is also excised, as it is usually thickened and may be calcified. The excision of the ligament together with the bursa will further enlarge the space available for your cuff to glide underneath the acromion. Attention is then directed to the rotator cuff itself. This is inspected and the tear located. If the tear is amenable to repair, this is performed using non-absorbable sutures, sometimes using very small bone anchors that you may be able to see on the post-operative x-rays. Unfortunately, sometimes the tear is so large that repair is not technically possible. In this case, repair will not be attempted. The next step is to close the tissues and skin wound, you will then have local anaesthetic inserted into the area together with a drain. You will then be placed in an arm sling to support your shoulder.

RECOVERY

When you wake up you will be in the recovery ward for approximately 30 minutes, after which you will be taken to your room in the hospital ward. You will normally spend one to two days in hospital but you may leave the hospital on the day of surgery if your condition and pain permits.

It is very important to realise that in such an operation, post-operative physiotherapy and rehabilitation is of the utmost importance. You will need to see your physiotherapist in hospital, who will instruct you in the appropriate exercises that you should perform, and more importantly on activities and movements that you should avoid. You need to make sure that you have an outpatient physiotherapy appointment before leaving the hospital. The rehabilitation program is variable and depends on several factors including the presence or absence of Rotator Cuff tears and whether these tears have been repaired or not and also the amount of tension on the repair which is again related to the size and the quality of tissues.

Your surgeon will review your wound in the rooms two weeks after surgery where the sutures will be removed. If during that period you have any concerns regarding your wound or the possibility of infection, please to not hesitate to contact your surgeon.

The following post-operative rehabilitation is a general guide only and you should consult with your physiotherapist regarding the most appropriate exercises and rehabilitation procedures that best suit your condition and type of operation that was performed.

COMPLICATIONS

Shoulder Sub-Acromial Decompression, like all operations, can have certain complications. Although they are rare, they do happen. Please read the following list carefully and feel free to ask your surgeon if you have any queries.

1. Anaesthetic related complications
2. Allergic reactions to medications and material used before, during And after the operation
3. Blood loss/haemorrhage
4. Infection
5. Fractures
6. Re-rupture of rotator cuff repairs
7. Nerve and vessel injury
8. Sympathetic Dystrophy
9. Painful, thickened or unsightly scar
10. Joint stiffness
11. Residual or incomplete pain relief
12. Clots (Thromboembolic disease)
13. Strokes
14. Myocardial infarction
15. Shoulder weakness
16. Chest complications, e.g. Pneumonia
17. Urinary complications – retention, infection
18. Renal failure
19. Thrombophlebitis
20. Wound breakdown

This is not a comprehensive list of all possible complications. If you do not understand the information, you should discuss your queries with your surgeon.

THREE-PHASE SHOULDER EXERCISE PROGRAMME

Exercises progress from assisted to active, in conjunction with terminal stretching, and finally combine an active and terminal stretching programme with a resisted exercise programme concentrating on the external rotators and forward elevators.

PHASE 1 - The programme begins with assisted forward flexion, using the opposite normal extremity for power (**Fig**. **46, *top left***). Next come assisted external rotation, using a cane (**Fig. 46, *top right***) , and extension, powered by a stick. Once 30 degrees of extension has been obtained, the routine progresses to internal rotation, powered by the opposite arm (**Fig. 46**, *bottom left*). When 90 degrees of forward flexion has been achieved, pendulum exercises can be added (and used subsequently in the programme as warm-up exercises). Pulley exercises are an excellent method of achieving forward flexion, especially in bilateral disease. External rotation can be enhanced by grasping the hands behind the head in the abducted position.

PHASE 2 - Active motion with terminal stretching programme. When passive range of motion is almost normal, the patient can proceed to an active programme. This can be done in conjunction with isometric exercises to increase muscle tone. The Phase 2 programme done in the early stages on an assisted basis can now be repeated actively. The opposite arm should still be used to stretch at the extremes of motion. It is frequently at this stage that the sling is discarded.

Resisted Programme. Once the active programme has been instituted and pain is relatively minimal, resisted exercises are added. These exercises consist of forward flexion for the anterior deltoid (**Fig.46 *bottom center***.) and external rotation for the infraspinatus (**Fig.46*.*** *bottom right*). These seem to be the muscles that require the most intensive strengthening programme.

PHASE 3 - Finally, stretching exercises are introduced. The last few degrees of motion in forward flexion and external rotation can be gained by hanging from a door or stretching in external rotation in the doorjamb. The overall goals of the programme are first to obtain motion and then to restore strength. After six months, three to five minutes of stretching and strengthening after a shower are beneficial. It is important to emphasise that successful rehabilitation after rotator repair takes time. It is prudent to inform the patient that it may take as long as six months before the arm can be elevated above the horizontal with comfort and confidence.

FIGURE 46

FIGURE 46 – Shoulder Rehabilitation Programme.

Top Left: Assisted forward elevation with the opposite arm used for power.
Top Right: Assisted external rotation using a stick and wand.
Bottom Left: Assisted internal rotation using the opposite arm.
Bottom Center: Resisted forward flexion to strengthen the anterior deltoid.
Bottom Right: Resisted external rotation.

(Reproduced with permission from Hawkins RJ: The rotator cuff and biceps tendon, in Evarts CM (ed): *Surgery of the Musculoskeletal System*, ed 2. New York, Churchill-Livingstone, 1990, pp 1393-1425.)

APPENDIX (A)

Shoulder operations, like all other operations, can be associated with certain complications. Although these are rare, they do occur. Please read the following list carefully and feel free to ask your surgeon if you have any queries.

COMPLICATIONS

1 Anaesthetic related complications.
2 Allergic reactions to medications and material used before, during and after the operation.
3. Blood Loss/Haemorrhage
4. Infection
5. Fractures
6. Sympathetic dystrophy
7. Re-rupture of rotator cuff repairs.
8. Painful, thickened or unsightly scar.
9. Joint Stiffness.
10. Residual or incomplete pain relief.
11. Myocardial Infarction
12. Nerve and vessel injury.
13. Chest complications, e.g. Pneumonia
14. Urinary complications – Retention, Infection.
15. Renal Failure.
16. Thrombophlebitis.
17. Wound breakdown.
18. Shoulder weakness.
19. Clots (Thromboembolic disease).
20. Strokes
21. Nerve injury and paralysis.

CONSENT FOR OPERATION

I ……………………………………..…………………… (Name), of …..… …………..………..….

……………………………………………………..…..………………………………..…… …..(Address)

hereby give consent to Dr Lee Woo Guan to perform the following operation/procedures.
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I declare that the nature of the operation/procedure (operations/procedures) and the possible complications have been explained to me.

I am aware that the following risks/complications may result from the operation:-

Anaesthetic related complications Allergic reactions to medications and material used before, during and after the operation Blood Loss/Haemorrhage Infection Fractures Sympathetic Dystrophy Re-rupture of rotator cuff repairs Painful, thickened or unsightly scar Joint Stiffness Residual or incomplete pain relief	Myocardial Infarction Nerve and vessel injury Chest complications, e.g. Pneumonia Urinary complications – Retention, Infection Renal Failure Thrombophlebitis Wound breakdown Shoulder weakness Clots (Thromboembolic disease) Strokes Nerve injury and paralysis

COMMENTS: ………………………………………………………………………………………..

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I understand and accept these risks. I understand that my surgeon may decide to change aspects of the operative procedure according to his judgement at the time of surgery.

I have read and understand all aspects of the proposed treatment, and I have been given a chance to ask questions and discuss all the issues related to my operation.

I accept the risks associated with the operation to be undertaken and give consent to the operation.

Signed: ……………………………….….……………….. Date: ……….……………………………….

Name: …………………………………………… ... Place: ……..……………………………….……….

Witness: ………………………… Date: …………… Name: ……...……….……………………….

C:Protocol – Shoulder Sub-Acromial Decompression – Revised 7/7/03

APPENDIX (B)

ENDOSCOPIC SUBACROMIAL DECOMPRESSION

The decision to decompress the subacromial space by using the Endoscope rather than open surgery is usually based on the absence of a full thickness rotator cuff tear. Even a very small partial thickness tear may be cleaned and trimmed through the Endoscope.

The operation's goals are the same as open surgery. However since only 2 or 3 small 1 cm incisions are used, the rehabilitation is much quicker and there are usually no restrictions regarding the use of the arm following surgery. In fact you are usually encouraged to start your mobilisation and strengthening exercises as soon as you recover from the anaesthetic. Pain is usually less than open surgery and you are also able to return to work quicker. The complications however are the same as open surgery and the success rate may be slightly lower.

In the immediate postoperative period, you may notice that your shoulder is very swollen. This is due to the escape of some of the fluid that is used to distend the shoulder during surgery into the tissue planes. The swelling however will resolve over a period of one to two days and usually has no harmful effects.