Case Report

Rehabilitation Following Fibro Adenoma Removal Surgery for a Female Junior Elite Basketball Player with Sacroiliac and Lumbo pelvic Dysfunction: A Case Report

Edith YT Lam, Kitty TK Wong and Indy MK Ho*
Sports Therapy Centre, Technological and Higher Education Institute of Hong Kong, Hong Kong

Abstract

Introduction: Fibro adenomas is the most common benign breast tumors in young women while 15% of the population with lower back and buttock pain was caused by the sacroiliac joint dysfunction. This is the first reported case of the rehabilitation of fibro adenoma removal surgery for an elite female basketball player with suspected lumbo pelvic instability and sacroiliac joint dysfunction.

Case presentation: A 17-year-old female basketball player had fibro adenoma excision on her left breast and presented with pain in palpation or left shoulder movements. She presented with two years history of lower back pain in subsequent visits that was worsened in trunk flexion or rotation.

Daily application of sports massage on chest scar tissues and gentle shoulder and scapula mobilization were applied. Besides, deep core muscles activation, postural control training and upper limb muscle strengthening exercises were introduced. After 1-week rehabilitation, significant reduction of chest pain with shoulder movements was achieved. The patient could also activate the lumbar multifidi and perform some advanced core stability exercises with satisfactory core control.

However, she was urgently called back for resuming normal sport training and was resent for rehabilitation again due to the deterioration on her chest wound and lower back pain after having basketball practice and conditioning for one day. Pain was well controlled after resuming rehabilitation with the use of pelvic binder.

Conclusion: Negative result was obtained due to early return to practice with incomplete rehabilitation. The judgment on making progression and return to practice is critical.

ABBREVIATIONS

SIJ: Sacroiliac Joint; ROM: Range Of Motion; LBP: Lower Back Pain; NRS: Numerical Rating Scale; ASIS: Anterior Superior Iliac Spine; PSIS: Posterior Superior Iliac Spine

INTRODUCTION

Fibro adenoma is the most common benign breast tumor in young women [1-2]. Traditional surgery for removing tumor resulted in large wound in the skeletal muscles, causing pain, inflammatory response and scar tissue. It may limit the range of movement (ROM) [3]. To the best of our knowledge, there is no previous publication on the rehabilitation of fibro adenoma removal surgery for female elite basketball players. Up to 15% of the population has lower back and buttock pain caused by the sacroiliac joint (SIJ) dysfunction [4-5] and it can also produce pain along the same distribution as the sciatica [4]. It may be due to the weakness of the deep abdominal, gluteal and core muscles which are critical in holding the correct pelvic position and preventing SIJ hyper mobility [5].
CASE PRESENTATION

A 17-year-old Chinese national junior female basketball player playing the forward position received a fibro adenoma removal surgery at her left breast two weeks before she was seen by the rehabilitation training center. During the initial assessment, she complained severe pain on the left chest (Figure 1) with a one inch long observable dark red scar. Despite this, in subsequent visits the patient presented with two years history of lower back pain (LBP) especially worsened during trunk flexion and rotation. Symptoms were aggravated by prolonged sitting or standing up from sitting position but eased in lying position. Apart from these, previous history of ankle sprain was also noted.

Upon physical examination, the patient presented with winged scapular and round shoulder from our observation and she demonstrated decreased awareness in maintaining correct spinal posture. Severe tenderness rated as 7/10 pain level in Numerical Rating Scale (NRS) [6] was observed upon light touch or palpation on her wound. Adhesions, thickening and nodules were found surrounding the wound. Our patient reported pain free in resting or throughout active shoulder flexion and extension. However ROM of most other left shoulder movements were restricted by the pain on the chest wound. She complained severe pain (rated 7/10) in performing active left shoulder horizontal abduction which restricted her from reaching the outer range and moderate pain (rated 4/10) in passive left shoulder horizontal abduction. Significant pain during 100 degrees of abduction was noted. Slight pain (rated 1/10) was also reported in active left shoulder diagonal abduction, external rotation as well as performing left hand behind back. Besides, the pain did not subside immediately once aggravated. For the special test, the patient was able to perform wall push up without pain. Lower limb functional test including squat, single leg standing and walking were performed without pain. Due to the high irritability and early stage of tissue healing of our patient, we decided not to perform any other muscle strength or functional test on upper limb. We concluded the incomplete healing of scar tissue with adhesions on the muscle fibers of pectoralis major as our initial clinical impression.

Despite the chest pain, our patient also complained deep dull pain on the left SIJ when performing trunk flexion during subsequent visits. Lowered anterior superior iliac spine (ASIS) and elevated posterior superior iliac spine (PSIS) of the left pelvis was observed. Our patient felt pain in performing spinal flexion, extension and rotation especially during extreme range of flexion and extension with overpressure. Apart from the abnormal pelvic position observed, special tests on the SIJ were conducted. Positive results with the increase of deep dull aching pain localized to the posterior iliac crest and the SIJ during the Faber test, sacrum distraction test and sacrum thrust test were obtained [7-8]. Spastic erector spinae at the lower thoracic and lumbar region associated with the SIJ and LBP was observed, and the recruitment of Multifidus muscles was not felt by palpation. Applying central and unilateral posterior-anterior accessory movement on multiple levels of lumbar spine produced significant comparable pain. Since no neurological sign and symptom was reported, we have ruled out the possibility of nerve compression or neural involvement. In performing single leg extension in prone lying, a significant slower activation time of gluteus maxim us than the erector spinae and hamstring muscles was observed through palpation. Based on the pain pattern, aggravating and easing positions, standing posture and the results from the special tests on SIJ, our initial clinical impression to her problem was anterior in nominate rotation of left pelvis with suspected lumbar and SIJ instability. We immediately prescribed passive mobilization to correct the anterior in nominate. Although normal ASIS and PSIS levels were restored after the quick treatment and confirmed in our reassessment, only slight decrease on SIJ pain was reported.

Based on the timeline of tissue healing (2 weeks post-operation) and the signs and symptoms, our treatment goals and rehabilitation plan decided were to promote better wound healing and pain control in the chest, enhance the lumbo pelvic and SIJ stability by reactivation of relevant stabilizers as well as prevention of reconditioning after prolonged detraining. The rehabilitation program was composed of two parts including the sports therapy and muscle strengthening. The sports therapy included daily application of gentle and pain free sports massage such as effleurage, palm kneading and cross-fiber friction (Figure 2) on the surrounding muscles and scar tissues located for 20 minutes. Passive static stretching (Figure 3) with pain free for 20-30 seconds with 3 repetitions on the pectoral region and gentle shoulder and scapula mobilization with pain free were performed after the sports massage. Besides, deep core muscles and activation, including the transverses abdominis (Figure 4) and multifidi (Figure 5) as well as postural control training (Figure 6) were also performed on the daily basis as well.

Despite the sports therapy treatments, progressive muscle strengthening exercises with light or even no resistance on the upper limb muscles in pain free position were introduced. Our patient experienced slight pain in performing certain upper limb resistance exercises such as dumbbell front shoulder raise and dumbbell biceps curl (rated 1/10). Moderate pain was reported after the completion of 6 repetitions of wall push up (rated 6/10) and during the eccentric phase of shoulder raise in full.
can position (rated 6/10). All these exercises were modified or removed immediately if pain was reported to assure training without pain.

After the completion of 1-week rehabilitation, significant reduction of chest pain during shoulder movement was observed (Figure 7). Our patient was also able to activate the lumbar multifidi with the facilitation from the finger tips palpation of the therapist and she was able to perform some advanced core stability exercises with satisfactory core control, including maintaining neutral spine and significant activation of gluteus
Figure 5 The demonstration of multifidi activation with draw-in maneuver and finger tips palpation by simulation (The real patient is not shown): A – starting with inhalation. B – finishing with exhalation.

Figure 6 The demonstration of postural training with concurrent multifidi activation and draw-in maneuver incorporated by simulation (The real patient is not shown): A – Anti-flexion. B – Anti-extension. C – Anti-rotation.

Figure 7 The progress on the chest pain level in different left shoulder movements (The player was called back for resuming basketball training on 7 January).
maximus with palpation, such as quadruped with single hip extension.

After the 1-week rehabilitation, our patient was urgently called back by the coaching team for resuming normal basketball and high intensity conditioning without the consultation from rehabilitation and training center. She immediately reported the leakage of fluid from her chest wound after performing several dribbling drills and heavy barbell bent over row strengthening exercise. Despite the re-injury of the chest wound, her LBP and SIJ pain was exacerbated after performing basketball drills and trunk rotation exercise with weight plate. She was then resent to the rehabilitation training center the day after returning to practice. After the reassessment, she reported moderate chest pain again (rated 5/10) and resting pain on lumbar region and SIJ. The LBP was increased to moderately high level (rated 6/10) when performing trunk flexion. We resumed the rehabilitation on the chest, lower back and SIJ as before but the extreme LBP and SIJ pain were reported in performing single leg bridging exercise, which was well performed and tolerated before return to basketball practice. Due to such deterioration and unstable condition of the lower back and SIJ pain after resent for redoing the rehabilitation, we advised her putting on a pelvic binder during and after exercise. Since then, she reported pain free in most movements and daily activities, and was able to resume most core stability exercises in pain free condition with the pelvic binder.

**DISCUSSION**

There is no case report in the literature that documents the sports therapy and exercise rehabilitation after fibro adenoma removal surgery and for SIJ pain most literature only focused on the assessments, diagnosis and causing factors. In our case, the patient reported pain decrease after gentle sports massage around the chest wound, passive shoulder mobilization and pectoral stretching, and light resistance training in pain free position. All these were proposed to promote better realignment and remodeling of the scar tissues, and breakdown of adhesion and fibrosis which are in line with similar findings from previous studies as well [9-11]. The positive result in pain reduction on SIJ and lumbar after the core muscles activation, including the multifidi, transverses abdominis and gluteus maximus, and stability training was apparent and consistent to finding or recommendation from literature [12-15]. The application of pelvic binder for relieving LBP and SIJ pain has been described before [16-17] and the positive feedback from our case was apparent as well. Another key to symptomatic improvement in the early stage of our case before returning to practice was avoiding risky exercises, such as trunk rotation, explosive moves and high impact asymmetric lower limb weight bearing exercises that may put extra stress on the unstable lumbo pelvic structures and SIJ. Therefore, the sequence of progressive rehabilitation on lumbo pelvic or SIJ instability should be the activation of deep local stabilizers without loading first followed by progressive core stability exercises. The strength training with high resistance as well as functional sport specific moves should only be performed in pain free after satisfactory core control has been achieved. Moreover, the poor muscle recruitment pattern that weak and slow glutaeus muscles with synergistic dominant on hamstring and erector spinae contributing to lumbo pelvic and SIJ instability should also be corrected as part of the exercise rehabilitation. Although there was no direct causal relationship between the chest surgery and the lumbo pelvic or SIJ dysfunction in our case, precautions in exercise selection for both the chest and lower back were made because of the increase of pain on chest wound in certain movements and positions. For example, exercises with excessive weight bearing on chest such as plank and stability training in prone lying position or any exercise with excessive shoulder horizontal abduction resulting in more pain were not considered. On the other hand, single arm upper limb exercises on the good side which have long lever arm and potentially increase trunk rotation such as dumbbell chest press or fly should also be avoided especially when the lumbar spine or SIJ was unstable. As the decision on early return to practice without the agreement from medical or rehabilitation professionals have put our case in a more vulnerable position and finally led to the deterioration. Therefore a strict return to play or practice criteria and mutual agreement between coaching and medical teams before resuming the normal practice was recommended.

To conclude, the proper design of rehabilitation program for our patient with fibro adenoma removal operation and suspected lumbo pelvic and SIJ dysfunction is challenging due to the high irritability and poor neuromuscular control. The accurate judgment on when the training progression and return to practice should be permitted is difficult but critical.

**REFERENCES**


