A case report of shoulder abscess secondary to attempted intraarticular injection in rotator cuff tear; why it should be avoided

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Abstract
Intraarticular injections are considered as minor day care/ opd procedures around the world. Intra-articular injections for shoulder are used frequently in our region by both orthopaedic surgeons as well as general practitioners. These injections are not without complications and require training regarding its indication and technique. We are reporting a case of a 52 year old male who presented with abscess of the posterior aspect of left shoulder region post attempted intraarticular injection, that was managed surgically by incision and drainage. This case study should help us understand the inherent complications of such injections and gives insight about the current practice of intra-articular injections.

Keywords: Shoulder arthroscopy, Sports medicine, Rotator cuff tear, Intraarticular injections, Infections.

Introduction
Therapeutic intra articular/intramuscular injections are used by many doctors as a second line of management post conservative treatment of shoulder pain. However the complications associated with it can't be neglected, these include but are not limited to abscess, septic arthritis, crystallopathy, tendinopathy, atrophy of the already ruptured tissue and lipodystrophy.

We are reporting a case of a 52 year old male who presented to us with the complication of abscess around the posterior aspect of shoulder post an attempted intraarticular injection at a regional centre.

Case Presentation
A 52 year old male presented to us with left shoulder pain and difficulty in carrying out activities of daily living. On examination and investigation he was diagnosed with supraspinatus complete tear and was advised arthroscopic repair for the same but patient refused and underwent an attempted intraarticular steroid injection at a regional centre to the left shoulder and presented to us 5 days later with a tense swelling over supraspinatus and infraspinatus fossa.
On examination the swelling was diffuse, ill-defined and cystic in nature, around 3*3 cm over supra scapular region and 2*2 over posterior aspect of left shoulder. Erythema, local rise of temperature and tenderness around the swelling was present with decrease range of motion of left shoulder.no active discharge/sinuses present

Investigations
X-ray was done which showed no bony abnormality and the joint space was maintained.

Ultrasonography of scapular region revealed intramuscular cystic swelling with fluid collection with multiple septations.

A repeat MRI scan of shoulder was done which revealed intramuscular abscess of left suprascapular region with multiple loculations in addition to the previous complete supraspinatus tear as shown in the previous MRI. The abscess was confined to the muscular plane and not present within the joint itself. In Fig 1. and Fig 2 Below we can see hyper intense area depicting collection of viscous fluid in the muscular plane.

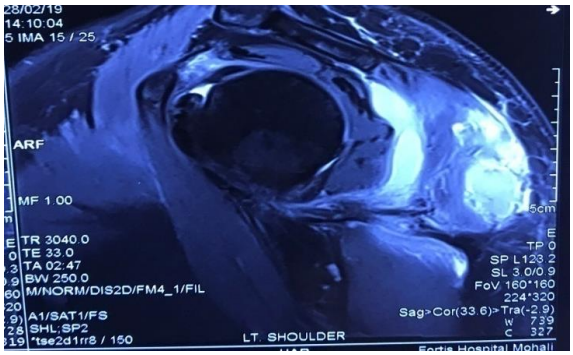


Fig. 1: MRI (left shoulder) showing intramuscular collection

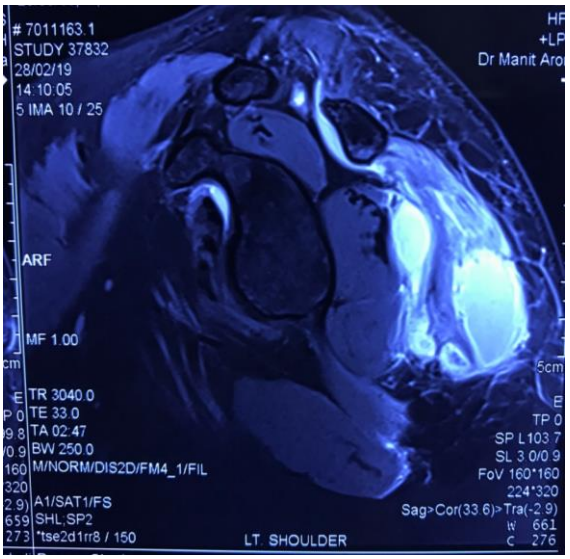


Fig. 2: MRI (left shoulder) collection in intramuscular plane of shoulder

Procedure

Under GA patient was positioned in beach chair position, parts scrubbed /painted and drapped. Transverse incision of 10*1cms was made over swelling from lateral aspect of spine of scapula and continued laterally towards the shoulder joint, which can be seen in Fig. 3 below, subcutaneous plane was retracted, fascia over the muscle was incised, two separate communicating abscesses were noted, incision and drainage was done and around 125 ml of frank purulent discharge was drained as seen in Fig 3. and taken for culture sensitivity. Partial closure of the incision was done and patient underwent regular dressings until secondary healing.

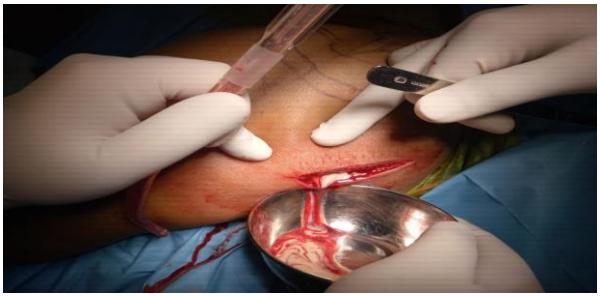
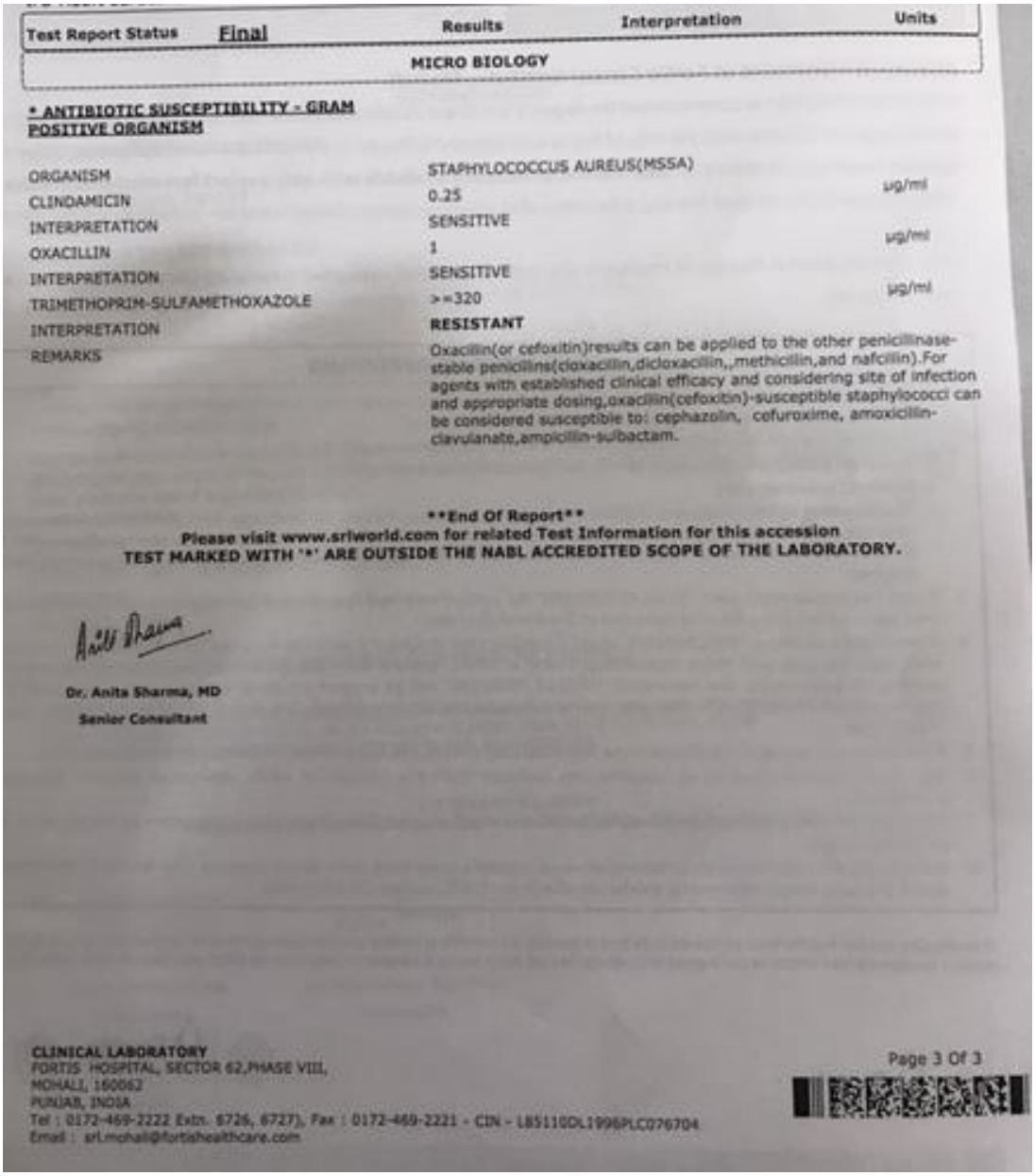


Fig. 3: About 125ml of frank pus post incision and drainage (intraoperatively)



Test Report Status **Final**	Results	Interpretation	Units
MICRO BIOLOGY			
*** ANTIBIOTIC SUSCEPTIBILITY - GRAM POSITIVE ORGANISM**			
ORGANISM	STAPHYLOCOCCUS AUREUS(MSSA)		
CLINDAMICIN	0.25		µg/ml
INTERPRETATION	SENSITIVE		
OXACILLIN	1		µg/ml
INTERPRETATION	SENSITIVE		
TRIMETHOPRIM-SULFAMETHOXAZOLE	>=320		µg/ml
INTERPRETATION	**RESISTANT**		
REMARKS	Oxacillin(or cefoxitin)results can be applied to the other penicillinase-stable penicillins(cloxacillin,dicloxacillin,,methicillin,and nafcillin).For agents with established clinical efficacy and considering site of infection and appropriate dosing,oxacillin(cefoxitin)-susceptible staphylococci can be considered susceptible to: cephazolin, cefuroxime, amoxicillin-clavulanate,ampicillin-sulbactam.		

****End Of Report****

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Fig. 4: Culture report-depicting staphylococcus aureus infection (MSSA)

Following surgery he was administered 3rd generation cephalosporins intravenous for the first week. Culture reports which revealed staphylococcus aureus infection the report of which as been attached as seen in Fig. 4. Following which he was started on oral rifampicin and cefuroxime for a period of 6 weeks. With regular dressings the infection subsided and the incision healed by secondary intention. Fig. 5 reveals the complete healing by secondary intention.

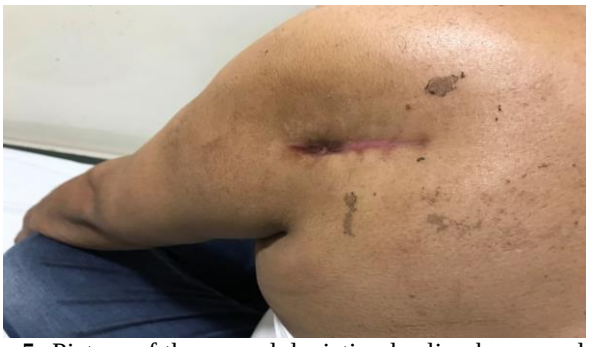

Fig. 5: Picture of the wound depicting healing by secondary intention (3 weeks post operative).

Discussion

Short term benefits with intra articular steroid injections are leading to more therapeutic injection applications, thereby increasing the complications encountered with it. As per tryfonidis et.al 15 percent of all the intra-articular injections lead up to abscess at the injection site, of which 13.6% gets aggrevated leading to septic arthritis.[1]

Bokor et al.[2] and Koubâa et al.[3] showed good results in patients with shoulder tendon injury treated with combinations of rehabilitation, anti-inflammatory agents, and local corticosteroids injections.

Several studies support corticosteroids efficacy in chronic shoulder pain. It demonstrates that corticosteroids do not alter the natural progression of subacromial pain, but produce only a symptomatic relief.[3-5] which may be a result of its anti-inflammatory effect.[6] Corticosteroids can alter the release of noxious chemicals that are triggered by degenerating tendon.[7] Repeated corticosteroid injections are associated with a poorer long-term effect on reduction in pain when compared with single injections for possible deleterious effects of repeated dosing.[8,9]

The case presented here will help to spark a debate on the role of such injections and also shed light on the current practices of intra-articular injections.

Intra articular injections can be considered in

1. Elderly patient with osteoarthritic pain, impingement, pain due to cuff tear in which cuff repair is contraindicated.[9]
2. Intra-articular steroid injections are injected into joint to relieve pain and swelling.[10]

Before the procedure mandatory clinical and radiological examination should be considered to rule cuff injury. Repeated injections should be avoided to prevent vascular necrosis and infections.[11]

Aseptic precautions should be taken and indications of injection must be followed.

Injecting steroid injections in intramuscular/intra-articular areas can be hazardous thereby leading to sepsis/crystallopathy or rupture of tendons. Steroid infiltrations as intramuscular depot should be avoided. Patients should be warned about the side effects and alternative form of treatment before hand.

Conclusion

Intraarticular injections are considered as minor day care/opd procedures around the world. With this case report we would like to enhance the skills and knowledge of our colleagues about the deleterious outcomes of not using aseptic precautions while applying intraarticular injections and also to follow absolute indications before applying intraarticular injections to prevent such instances.

For the above study patient had been previously informed and a written consent for surgery as well as participation in the study was taken from the patient.

Source of funding

None.

Conflict of interest

None.

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