

Post Intramuscular Injection Gluteal Abscess: A Retrospective Study at a Peripheral Hospital in India

Sajjid H. Batt¹, Saima Amin²

¹Consultant Surgery, Department of Health and Family Welfare, District Hospital Kishtwar, J&K, India

²Post Graduate, Department of Anaesthesia and Critical Care, SKIMS, Srinagar, J&K, India

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Corresponding author: Dr. Sajjid H. Batt

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Abstract

Introduction: Intramuscular injection in buttocks is a quite common mode of drug administration all over the world. The site being notorious for abscess formation. Various etiological factors being unsterile practices, improper technique, patient comorbidities like diabetes and immunosuppression.

Material and Methods: This retrospective study was conducted at District hospital Kishtwar over two years (January 2022-february 2024) on patients admitted with complaints of fever, pain and swelling in gluteal region following intra muscular injection.

Results: We evaluated a total of 47 patients admitted during study period. Mean age of patients in our study was 41.7years with the majority being females (59.6%). Most of the patients belonged to rural areas (65.9%), diabetes being the most common co-morbidity (27%). In the majority of patients developing abscess(23) the injection was administered by a local paramedic living in the nearby vicinity, eleven patients were given injection by a family member or a relative , nine were injected by a trained nurse or hospital staff whereas only four patients were given injection by a doctor. The most common procedure done for management was incision and drainage (89.4%) done under local and regional anaesthesia.

Conclusion: Despite advances in antiseptic techniques post intramuscular injection gluteal abscesses are common. Most cases result from improper technique and lack of aseptic precautions. The most effective treatment is incision and drainage of abscess.

Keywords: Gluteal Abscess, Intramuscular Injection, Incision Drainage.

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Introduction

The administration of intramuscular (IM) injections in buttocks is a routine practice in healthcare facilities all over world. Gluteus maximus is the primary site for the procedure. It is chosen because of it's large mass and accessibility. The objective of an intramuscular injection (IM) is to deliver the drug into the muscle layers beneath the subcutaneous tissue. It provides rapid systemic action and absorption of the drug in relatively large doses (up to 5ml in most sites) [1]

A gluteal abscess is one of the most important complications after gluteal injection [2]. A gluteal abscess occurs due to injections not made by the rules of asepsis. However, abscesses seen at the intramuscular injection site are usually sterile abscesses, and apart from the local trauma caused by the injection, the irritation properties of the drug are thought to cause abscess and necrosis.

When the injected drug is released into the subcutaneous tissue instead of the muscle, its absorption is delayed, and thus more tissue

reactions are observed [3]. In developing countries, abscesses are more frequently secondary to injection involving unsterile techniques including the use of contaminated needles and dirty clothes. Major risk factors for superficial abscesses include malnutrition, obesity and metabolic diseases such as diabetes, uremia and jaundice. Disseminated malignancy may also be included, together with immune-suppression caused by radiotherapy, chemo-therapy or AIDS [4]. Once an abscess is detected, incision and drainage should be performed and may need to be repeated [5].

Material and Methods

The present study was a retrospective study conducted at district hospital kishtwar between January 2022 to February 2024. All patients admitted with gluteal abscess with history of intramuscular injection, on the same side, within four weeks before presentation were included in the study. The study aims at quantifying the disease burden on health care set up, enumerate causes of

abscess formation, improvising injection techniques, educate on importance of sterility practices, early diagnosis to minimise morbidity, improvise quality of life. Interpret the efficacy of treatment modalities practiced.

Inclusion Criteria:

- Age > 14 years
- Injection administration within 4 weeks of presentation
- Symptoms at the site of injection

Exclusion Criteria:

- Pediatric age group
- Underlying bone disease

Majority of patients in the study were managed with incision and drainage of abscess via local or regional anaesthesia. Broad spectrum antibiotics was given in all cases at the time of induction or one hour before surgery. A crutiate or elliptical incision was made at the most dependent part of abscess cavity. All loculi were broken and cavity was irrigated with normal saline and betadine. After drainage a corrugated rubber drain was placed in the cavity and antiseptic dressing was done. Post-operative analgesia and antibiotics were prescribed in all cases. Most of the patients were discharged on the same day or 24 hours after

surgery with the advice to do antiseptic dressings daily in the hospital or nearby health facility. Follow up was done at one, two and 4 weeks after surgery.

Results

The present study was a retrospective study based on records maintained at hospital over two years January 2022 to February 2024. In this study a total of 47 patients were included. All were admitted as cases of post injection gluteal abscess with history of receiving intramuscular injection at ipsilateral site within 4 weeks.

The patients ranged between 18 years to 84 years of age with mean age of 41.7 years. Majority of patients were females (59.6%) as compared to males (40.4%). Patients from rural areas outnumbered the patients from urban areas (65.9% vs 34.1%). Diabetes mellitus was the most common comorbidity in our patients (27%). The most common procedure done for management was incision and drainage (89.4%). Five patients were managed conservatively. We observed recurrence in two patients. Both were initially managed with medical treatment and both were later taken for incision and drainage under regional anaesthesia. Following table enumerates the various observations from our study.

Table 1: Observations from study

Parameters	Number	Percentage (%)
Total	47	100
Males	19	40.4
Females	28	59.6
Rural	31	65.9
Urban	16	34.1
Diabetics	13	27
Immunosuppression	2	4.3
Incision and Drainage	42	89.4
Conservative	5	10.6

In our study the majority of patients received injection from a nearby practitioner (48.9%) whereas only 8.5% patients received injection by a qualified doctor. The table below lists the various personnel giving intramuscular injection.

Table 2: Personnel administering I/M injection

Person administering	Number	Percentage (%)
Local practitioner	23	48.9
Relative	11	23.4
Trained nurse/ hospital staff	9	19.1
Doctor	4	8.5

Discussion

In spite of advances in aseptic techniques, widespread use and availability of disposable needles and syringes post injection gluteal abscesses are quite common in our part of world. In this study twenty three patients had gluteal abscess who received injections by local practitioners.

Various reasons could be faulty techniques, use of unsterile syringes and taking multiple pricks from vials.

In a study conducted in Sulaimani teaching hospital, surgery department, Sulaimani University in Kurdistan, Iraq 91% patients had gluteal abscess despite using disposable syringes by

trained nurses or paramedical staff. This is a large percentage of cases getting abscess post intramuscular injections, so the etiology could be other than the unsterile techniques. The depth of subcutaneous tissue varies depending on the sex and body weight of the patient. The most of the patients may have received the subcutaneous injections [6]. This is because of having more subcutaneous fat in female in comparison to males, thereby increasing the probability of receiving injection in subcutaneous tissues. Similarly obese patients with excessive subcutaneous fat and tissue are more vulnerable to get subcutaneous injection instead of intramuscular injection because of higher subcutaneous fat.

It is a common practice in our locality the paramedics are used to mixing different intramuscular medications in the same syringe to form a mixture of drugs which may lead to drug interaction and produce adverse effect at local site of injection, this mixture is usually a collection of analgesic, antibiotic or steroid. Similarly repeated injections on one side leads to repeated trauma, tissue damage, necrosis and fibrosis thereby interfering with drug diffusion leading to delay in absorption and increasing susceptibility to infection [7].

Associated co-morbidities are significant risk factors for development of abscesses after intramuscular injections especially in the presence of devitalized and necrotic tissue after subcutaneous injections of medications in immune compromised patients, the presence of pre-existing tissue necrosis in a hyperglycemic environment would provide excellent conditions for bacterial proliferation [8].

The mean subcutaneous fat thickness in the gluteal region is 5.0 ± 1.9 cm, with female patients having a mean of 5.7 ± 1.8 cm as opposed to 4.4 ± 1.7 cm in male patients, because the buttock subcutaneous fat thickness exceeded the length of the most commonly used green (21 Gauge) needle for IM injections (3.8 cm), so the use of longer needles is suggested in the intragluteal injections especially in obese patients [9].

Gluteal abscess is diagnosed on clinical grounds. Proper history and examination should be performed. Patients with intense localised pain and tenderness after 24 to 48 hours following injection should be followed up and kept under observation high index of suspicion is recommended. Investigations like complete blood counts and

blood sugar should be done in all cases. Other investigations like ultrasonography, CT scans are also required in select cases. Various studies have shown ventrogluteal region is much safer for intramuscular injection compared to dorsogluteal region as it is free from major blood vessels or nerves with a consistent layer of subcutaneous fat.

Conclusion

Post injection gluteal abscess is very common in our set up. Lack of proper technique, improper antiseptic methods, patient factors like female sex, obesity, comorbidities like diabetes and immunocompromised states are contributory factors. The best treatment is incision and drainage of abscess cavity. This being the procedure with high success rates and very low recurrence.

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