DELTOID INJECTION ABSCESS IN PATIENTS PRESENTED TO A TERTIARY CARE HOSPITAL: IGNORANCE IS NOT ALWAYS A BLESSING

by Mubashira Ahmad, Munir Ahmad

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DELTOID INJECTION ABSCESS IN PATIENTS PRESENTED TO A TERTIARY CARE HOSPITAL: IGNORANCE IS NOT ALWAYS A BLESSING

Mubashira Ahmad, Munir Ahmad, Sikandar Hayat, Fakhar-e-Alam, Ijaz Ahmad

Department of Surgery, Khyber Teaching Hospital Peshawar, Pakistan

ABSTRACT

Objectives: To find out the aetiology of deltoid injection abscess emphasizing more on the reasons in female patients and disseminate awareness among the community.

Materials and Methods: This descriptive cross-sectional study was conducted in the female Outpatient Department of surgery at Khyber Teaching Hospital, Peshawar, Pakistan from April 2017 to December 2017. All female patients with age more than 14 years who presented with deltoid injection abscesses on either arm were included and patients with diabetes, bleeding disorders, major debilitating disorders or immune-compromised conditions were excluded after taking informed consent in the study. All patients were interviewed regarding the Intramuscular Injection (IMI) technique and data was collected on a set proforma and analyzed on SPSS 20.

Results: A total of 50 female patients with deltoid injection abscess were included in the study. The injection administered by qualified personnel was 14 (28%) and non-qualified personnel were 36 (72%). It was injected over the sleeve in 41 (82%) patients while in only 9 (18%) patients the arm was exposed properly. The reasons for insignificant exposure came out to be social reasons in 9 (18%), time deficiency in 9 (18%), improper trained personnel in 19 (38%), tight sleeves in 4 (8%) patients. In 9 (18%) patients aseptic measures were used while in 41 (82%) patients no aseptic measures were taken. Majority of patients were in the age group of 26-45 with mean age 35.5 years and S.D. ± 12.93.

All these patients had received injections from some local practitioners. The aetiology may be vast and surprising but our patients mostly received IMI over the sleeves due to simple avoidable reasons. It is to raise awareness on the root level before emphasizing on setting protocols.

Keywords: Injection Abscess, Deltoid Region, Local Practitioner.

INTRODUCTION

According to WHO, intramuscular injection is an administration of medications parenterally through a skin puncture by a syringe and a needle deep into a large muscle of the body for curative or prophylactic purposes [1]. The administration of IMI is an important part of medical treatment and a commonly practiced intervention by nurses and local practitioners in our setups. Deltoid region is the commonly used area for intramuscular injection. Mostly the injections are administered for therapeutic measures, as only 5% of all the injections are for the purpose of vaccination. In the developing countries, many of the injections for therapeutic measures have been judged to be unnecessary [2].

A skilled injection technique causes less pain and prevents potential complications [3]. The complications reported are muscle fibrosis and contractures, abscess formation at the injection site, gangrene and nerve injury [4].

The first reported complication of the hypodermic injection of medication was reported by Dr. Charles Hunter in 1865 [5]. At the time of his report, there was no sterilization of medications, syringes or needles. Unfortunately, even today the incidence of developing a complication from IMI ranges from 0.4-19.3 % of patients receiving them [5].

Infection can be a potential complication of any injection. The cause in arm can be wrong site, repeated injections into a single site, skin and surrounding tissues being damaged; developing local ischemia and necrosis, and thereby becoming susceptible to infections [6]. Once an abscess is detected, incision and drainage should be performed and may need to be repeated [7].

In developing countries, abscesses are more commonly secondary to injection involving unsterile techniques including the use of contaminated needles and dirty clothes [8]. Therefore, there is a need to establish reliable protocols for the administration of safe and effective IMI techniques [9].

The purpose of this study is to highlight the aetiology of deltoid injection abscesses in female patients due to faulty techniques. The cause not only being lack of training but social and time restraints. It is to make our healthcare providers realize that the skilled administration of a drug by intramuscular injection needs awareness not only among the practitioners but the local population as well in terms of proper exposure of injection site to avoid potential complications in females in a male dominating society. It is to inculcate awareness in the best interest of the society to eliminate the avoidable complications and indirectly the unnecessary burden on medical institutions.

MATERIAL AND METHODS

The descriptive cross-sectional study was conducted in the female Outpatient Department of surgery at Khyber Teaching Hospital, Peshawar, Pakistan for a period of eight months i.e. April 2017 to December 2017. All female patients with age more than 14 years who presented with deltoid injection abscesses on either arm were included and patients with diabetes, bleeding disorders, major debilitating disorders or immune-compromised conditions were excluded after taking informed consent in the study.

All patients were immediately worked up as a day case with detailed history and clinical examination. All patients were interviewed regarding the intramuscular injection technique and the parameters studied were broad qualification of the personnel injecting the intramuscular injection, the exposure of respective area, the reason for insignificant exposure and the aseptic measures taken or not. Data was collected on a set proforma and analyzed on SPSS 20.

Frequency and percentages were calculated for categorical data like etiology. Mean ± S.D. was for numerical variables like age. All results were presented on tables.

RESULTS

A total of 50 female patients with deltoid injection abscess were included in the study in which the intramuscular injection was administered by qualified personnel was 14 (28%) and non-qualified personnel was 36 (72%). It was injected over the sleeve in 41 (82%) patients while in only 9 (18%) patients the arm was exposed properly. The reasons for insignificant exposure were shown in table no.1. In 9 (18%) patients aseptic measures were used while in 41 (82%) patients no aseptic measures were taken. Majority of patients were in the age group of 26-45 years with mean age 35.5 and S.D. ±12.93.

DISCUSSION

Injection abscess is an iatrogenic infection that can occur as an isolated case or as a cluster outbreak. Dr. Hunter, whose patients developed the first reported complications of IMI, said that "If the site of the injection was continually varied and the puncture was made with care and celerity, there was no fear of abscess or diffuse inflammation". The procedure can come up with numerous and surprising complications. Most of the problems arising are related to local trauma by the injection itself or irritating properties of the drug being used. Others conclude that inappropriate training in the proper injection technique is responsible though. Nevertheless, the true etiology is still a dilemma unsolved [5].

The cause be either contaminated injectables or improper sterilization protocols the pathogens such as pseudomonas, klebsiella, E. coli and S. aureus are the usual causative agents [10].

The most common complications noticed after IMI are injection abscesses, pain, bleeding from the injection site, hematoma, recurrent injection abscess, necrosis of tissues, scar formation and fibrous myopathy [11]. In addition, these unsafe and unhygienic injection techniques can result in a number of infections, particularly hepatitis B and C and HIV [12].

Injection abscesses are the nodules of liquefied fat and muscle resulting due to necrosis of the involved tissues. Necrosis of the muscle can occur after any IMI no matter what medication is used. The amount, speed and toxicity of the drug injected will influence the size of the lesion [13].

The selection of the site and proper place for IMI is immensely important. According to a study, 64.2% of the practitioners were not sure about the correct place of injection in the

deltoid muscle [4]. In another study it is recommended to avoid the deltoid region where possible since its a small area available for the safe IMI. The needle must enter at 90 degrees to the skin site punctured and repeated IMI must be avoided [14].

In our locality the paramedics are used to mix different intramuscular medications in the same syringe to form a mixture of drugs which may lead to drug interaction and produce adverse effects at the local site. The mixture is usually a collection of analgesic, antibiotic or steroid [8].

In our study the etiology of deltoid injection abscess in female patients in our setups is looked forward to. We have added that ignorance is not always a blessing as not only the practitioners but our patients and their attendants mostly males are of the opinion that they may escape the complications every time. The IMI was administered by 72% of non-qualified personnel and was injected over the sleeve in a horrifying 82% of patients.

According to a study, it was noted that 5.5% of test subjects admitted to have injected through the clothes whereas 11.9% were in a habit of cleaning the needle with a cotton swab before injection. Injecting through the clothes can lead to the introduction of dust, cloth fiber and other infectious organisms into the site of injection [4].

It is in our study that we have highlighted the reason for improper exposure in female patients in our setup which can be heart wrecking to record. Though time deficiency, improper trained personnel, tight sleeves were some of the reasons for inappropriate exposure. In 18% of patients there were social reasons therein male attendants not allowing to let their patients

expose their arms before male practitioners and thus no aseptic measures taken in 82% patients.

There may be other reasons altogether for deltoid injection abscesses as shown in literature but an avoidable potential cause for infections via IMI is emphasized here to eliminate the frequency of deltoid injection abscesses due to inappropriate exposure in a male dominating society. They make their female patients land under the scalpels of male surgeons.

It is to minimize the unnecessary burden on medical funds via raising the awareness. It has been quoted in literature that unsafe IMI techniques have resulted in millions of dollars of cost on an annual basis [15].

As quoted in literature, the infections can be minimized by thoroughly cleansing the skin after appropriate exposure, use of disposable needles, single dose medications, appropriate size and length of needle, multiple sites if repeated and retracting the plunger before injecting. But our study highlights the least bothered reasons to raise awareness in the best interest of our community.

The limitations of our study are that we conducted this study only on female patients. Although it can be considered as a plus point in our study as the present study hold the gender variable constant but the main reason for not including male patients along with female is that the author is examining only female patients in female Outpatient Department of surgery. So the present study cannot be generalized to male patients too. Thereby, this area needs further research.

CONCLUSION

The purpose of IMI can be fulfilled by following the reliable protocols to make the complex psychomotor task more effective and to minimize the complications. In addition to the proper training of health care providers, awareness among the practitioners and local population regarding appropriate exposure before IMI is a simple practice that can avoid unnecessary complications and indirectly minimize cost on annual basis.

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ADDRESS FOR CORRESPONDING

DR. MUBASHIRA AHMAD
MBBS, FCPS
Specialist Registrar
SURGICAL DEPARTMENT KHYBER TEACHING HOSPITAL
PESHAWAR, PAKISTAN
CELL# +92 3339292667
E-mail: mubashiraahmad7@gmail.com

AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Mubashira Ahmad: Main idea and data collection.

Munir Ahmad: Critical review & finalizing.

Sikandar Hayat: Statistics.

Fakhar-e- Alam: Bibliography.

Ijaz Ahmad: Supervision and final approval of the version to be published.

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Figure: IMI Deltoid abscesses of patients under study

Table 1: Reasons of improper exposure of arm for Intramuscular Injection

Reasons	Frequency	Percent
Social Reasons	9	18.0
Time Deficiency	9	18.0
Improper trained personnel	**19**	**38.0**
Tight sleeves	4	8.0
Properly exposed arm	9	18.0
Total	50	100.0

Table 2: Frequency and percentages of ages in different groups of ages

Age groups(yrs)	Frequency	Percent
16 TO 25	13	26.0
26 TO 45	28	56.0
46 TO 70	9	18.0
Total	50	100.0

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