



TREATMENT APPROACH OF TATTOO-HEAVY METAL'S DYE INDUCING ACUTE ULCERATIVE SKIN LESION

Muhi N. Salman¹, Saud. Albagdadi ¹ and, Hale. Alobaidi²

Department of therapeutic, Baghdad College of Medical Sciences, Baghdad, Iraq.¹

Department of Dermatology, AL-kendi Hospital Teaching, Baghdad, Iraq.²

Corresponding author;

E-mail: muhi_spharm@yahoo.com

Telephone +9647731707856

Article history:	Abstract:
<p>Received: July 11th 2021 Accepted: August 7th 2021 Published: September 26th 2021</p>	<p>The occurrence of tattoos –heavy metal's dye with associated adverse skin reaction markedly increased in the last two decades. A29 years –old female was suffering from persistent ulcerative crater lesion on her upper left hand in middle area of orange to red decorative tattoos near the shoulder joint due to underwent to magnetic resonance imaging (MRI) after car accident. Complete healing of ulcerative lesion was achieved by application treatment protocol combined of antibiotic, cortisone and topical AQUACEL Ag foam/ surgical (convaTec) wound dressing. Conclusion; Tattoos heavy metal-dye may induce skin reaction starting from simple inflammatory reaction to end up with breakdown of persistent skin reaction. Alongside regulation, standardization is an important element for implementation of high-quality requirements for tattoo inks and tattooing.</p>
<p>Keywords: Tatoos, heavy metal –dye, Magnetic resonance image(MRI),AQUACEL Ag wound dressin</p>	

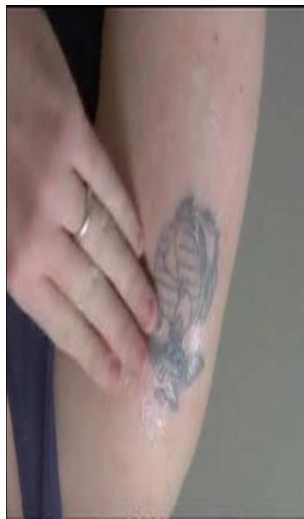
BACKGROUND;

Tattoos have left their maverick image behind and become mainstream, particularly for young people. Historically, tattoo-related health and safety regulations have focused on rules of hygiene and prevention of infections. Meanwhile, the increasing popularity of tattooing has led to the development of many new colors, allowing tattoos to be more spectacular than ever before. However, little is known about the toxicological risks of the ingredients used. For risk assessment, safe application of these pigments needs data for toxicity and bio- kinetics and increased knowledge about the removal of tattoos. Other concerns are the potential for photo - toxicity, substance migration, and the possible metabolic conversion of tattoo ink ingredients into toxic substances. Similar considerations apply to cleavage products that are formed during laser-assisted tattoo removal. Decorative tattooing is direct reaction response to the piercing of the skin with needles impregnated with pigment dyes prepared from metal salts. There may be transient redness and swelling area that disappear within 2-3 weeks . The unexpected reaction effect of the tattooing process in appearance of skin appearance of cutaneous injury. Reaction may occur include acute inflammatory ,eczematous hypersensitivity and granulomatous in its origin. Red henna tattoo- pigments caused the most reactions , particularly those made of mercury sulfide (cinnabar

(1,2). These dyes is often mixed with paraphenylenediamine(PPD) , chemical substance that is well known for causing allergic reactions in people sensitive to it (3,4). The main risks associated with tattooing were previously poor standard of hygiene and associated risks of infection.

Case presentation; A29 years-old female patient was admitted to private burns therapy center suffering from itching ,painful redness, swelling and skin persistent ulcerative crater of red decorative tattoos on her upper left hand .the patient complained that the lesion slowly appeared in the course couple weeks to one month after she underwent magnetic resonance imaging (MRI scan) at orthopedic center due to car accident. Swap was taken from the lesion for bacterial culture sensitivity test to gate infected methicillin – resistant staphylococcus aureus lesion which poorly responded to traditional prescribed topical antibiotic - cortisone combination

Figure (1)
 BEFORE AND AFTER(MRI EXPOSURE)



Treatment protocol;

A mesotherapy was used to clearance of tattoos area surrounding lesion ulcer of 0.5-1cm with laser rays at (532 nm)frequency dedicated for orange to red tattoos pigment in order to stop leakage deposit of current tattoos to the margin of ulcerative lesion (5).Methyl prednisolone 40mg twice for one week slowly intravenous given to contol accompanied responses ,piperacillin-tazobactam infusion of 6grams in divided 3doses in 9days.AQUACEL Ag foam (convaTec), which is wound healing dressing for effective debridement application inside the skin crater's lesion each other day for one week and AQUACEL Ag surgical(convaTec) dressing wound closure ,water proof top film to easy healing The healing process linspection for two weeks.

was developed gradually as granulation tissue step of skin recovery on the fifth day and end up to intact healing skin at the end of the third week.

CONCLUSION AND DISCUSSION;

Acute and chronic inflammatory reactions is a frequent side effect of tattooing process, due to physical injury to the tissue and injection of pigment into the skin erythema and swelling appears ,that disappears within 2-3 weeks. while the delayed reactions, most often immunological contact dermatitis ,occur several weeks or years after the tattoo ,which appear as foreign body reactions to inserted pigment. In most cases red tattoo pigments (mercury)as well as green, blue (cobalt)or purple(manganese) are associated with granuomatous reaction(6).clinically were diagnosis as acute and chronic reactions in form as pyoderma ,impetigo, cellulitis ,herpes simplex ,virus, papilloma virus and systemic infection with hepatitis B,C and HIV infected cases (6-11).several pathogenic bacteria were isolated from contaminated tattoo ink(12 ,13).magnetic resonance imaging scan produces a magnetic field that has been reported to t induce current within tattoo ink containing iron oxide for both tattoos and cosmetics containing iron oxide and/or metals ,that ,by interacting with magnetic fields ,can cause of heat , burns, swelling with irritation during an MRI scan(14). The rational use of antibiotic of choice along with effective advance technology wound healing dressing end up to complete skin healing without scar formation. In conjunction with an increasing public display of tattoos by role models, widespread perception is that tattooing is fairly safe. However, apart from a risk for severe dermatological complications, the inks used today have little in common with classic colourants and none have been toxicologically assessed for their use in tattoos (ie, intradermal application). The risk of infection depends mainly on the conditions under which the tattooing is done, and unhygienic practices such as moistening of the needle with saliva have traditionally been a major source of pathogens. Because of an increased awareness of hygiene, infections are now caused mainly by opportunistic pathogens and commensal skin microorganisms. In exceptional cases, the results can be as severe a pyogenic infection with abscess formation, erysipelas, cellulitis, fasciitis, and gangrene and can include systemic and life-threatening infection, especially sepsis and endocarditis (15).

Regulatory guidelines of Tattooing; The number of people with one or several tattoos is constantly increasing, and traditionally used dyes and pigments are being replaced by colourants that have never been used before. This development coincides



with an increase in reports of adverse reactions and thus poses a challenge for the regulation and risk assessment of tattoo inks worldwide. In the USA, tattoo inks are regulated as cosmetics under the Federal Food, Drug and Cosmetic Act sections and the pigments used in the inks are regulated as colour additives, which fall under a different section of the Act.. The practice of tattooing might be with or without professional certifications ,because they are treated as cosmetics, the act does not require pre-market review or approval of tattoo inks(16).However, when a colour additive is intended for injection, as is the case for tattoo inks and permanent make-up, a colour additive must specifically provide for such use safe defined as" that there is convincing evidence that establishes with reasonable certainty that no harm will result from the intended use of the colour additive . Because of the recent rise in reports of adverse events, the implication of manufactured sealed inks as the source of contamination and other information received about reactions related to tattoo (17).

Because it is a special situation, these measures include practical advice on sterility, and on management of injuries and bleeding, biological waste management, and information and documentation issues.

ACKNOWLEDGMENT;

For Generous gifts of AQUACEL Ag FOAM and AQUACEL Ag surgical by my dear colleague, the pharmacist. N.A. AL-QORIASHI (STATE OF DUBIA).

REFERENCES;

1. Jacob cl.Tattoo-associated dermatoses :a case reportand review of the literature .Dermatol Surg .2002;28:962-5.
2. Omata A,Irimie M.Dermatoze associate tatuajelor .Dermato Veveerol (buc),2008;53:163-166.
3. Gutermuth J,Hein R,Fend F ,et al.Cutaneous pseudolymphoma arising after tattoo olacement .J Eur Acad Dermatol Venereol .2007;21(4):566-7.
4. Kluger N,vermeulen C,M0guelet P,et al.Cutaneous lymphoid hyperplasia in tattoo.j Eur Acad Dermatol Venereol .2010;(24):208-13.
5. Kuper M, Levine VJ, Ashinoff R. Laser removal of tattoos. Am j Clin Deratol .2001 ;2:21-25.
6. Bucur Gh.Boli dermatovenerice .Encicloдие .Editura Medicala Nationala .Bucuresti,2002;808.
7. Ghopade A.Tatoo inoculations lupus vulgaris in two Indian ladies. J Eur Acad Venereol. 2006; 20:476-7.
8. Rad=gland HP,Hubell C,Stewart KL,et al.Vulgaris inoculated during tattoo placement.Int J Dermatol.1994;33:769-7.
9. Trefzer U,Schmollack KP,Stockfi E,et al.Verrucae in multicoloured decorative tattoo . j Am Acad Dermatol.2004;50:478-9.
10. Salmaso F,Gnecchi L,Gianotti R,et al.Molluscum contagiosum on a tattoo.Acta Derm Venereol. 2001; 81:146-7.
11. Perez Gala S,Alonso A,Rios L. Molluscum contagiosum on a tattoo.Acta Derm Venereol. 2006; 20:221-2.
12. Long GE,Rickman LS.Infectious complications of tattoo . Clin Inf Dis 1994; 18:610-19.
13. Wollina U. Severe adverse events related to tattooing. Indian J Dermatol2012; 57:438-43.
14. Whiteny D,Shellock FG.Magnetic resonance imaging and permanent tattoos;Survey pf complications and adverse events . J Magn Reson imaging .2002;15:180-4.
15. Centers for Disease Control and Prevention (CDC). Methicillin-resistant Staphylococcus aureus skin infections among tattoo recipients–Ohio, Kentucky, and Vermont, 2004–2005.MMWR Morb Mortal Wkly Rep 2006; 55: 677–79.
16. Rodriguez-Blanco I, Fernandez LC, Suarez-Penaranda JM,Perez del Molino ML, Esteban J, Almagro M.
17. Mycobacterium chelonae infection associated with tattoos. Acta Derm Venereol 2011; 91: 61–62.
17. Kennedy BS, Bedard B, Younge M, et al. Outbreak of Mycobacterium chelonae infection associated with tattoo ink.N Engl J Med 2012; 367: 1020–24.