The 2012 Summary of Published Medical Journal Articles Involving Body Piercing, Modifications, & Tattooing

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List of 2012 Published Medical Articles on Body Art

126 published medical articles in 2012


Hwang, K., et al. (2012). Which type of earring and which piercing point is safest with regard to tearing through the ear by an external force? Dermatol Surg. 38(5). 772-777.


- Only 1 of 3 preparations used by tattoo artists actually contained henna and all 3 contained PPD
- Risk for severe allergic reactions to PPD

- Healthy 35 year old female with necrobiosis lipoidica diabeticum in a tattoo site (first reported case of this in a tattoo site)

- “Tattoo based sensors offer considerable promise as wearable potentiometric sensors suitable for diverse applications.”

- 32 year old female with vulvar cancer & surrounding area nodes which were swollen due to tattoo ink reaction & not from metastasis

- Smoking, the presence of colors other than black and red, high color density, treatment intervals of 8 weeks or less, and development of a darkening phenomenon were associated with a reduced clinical response to treatment

- 12 blue &/or green pigment tattoos treated with new picoseconds alexandrite laser
- All had at least 75% clearance after 1-2 sessions & more than 2/3 had nearly 100% clearance

- “Our findings suggest that two or more body piercings might serve as an identifiable marker for PTSD symptoms and may have important implications for clinical screening.”
- Survey of nursing assistants working in an adolescent hospital ward about how the nursing assistants perceive tattoos and piercings
- “Religion and family values prevail over professional knowledge in how body marks are perceived.”

- Measurement of threshold for skin damage and effects of multiple pulses
- “Pre-pulse reduces the interaction strength and a single strong pulse produces better removal results.”

- Study showed that CO2 laser was a precise, simple, safe, and aseptic technique for ear piercing with a lower level/shorter duration of post-operative pain when compared with a spring loaded gun

- Fluorescent tattoo is invisible under visible light and visible only under Wood’s light
- UV-fluorescent tattoo may be used to locate a biopsy site

- Summary of legal issues associated with workplace body art

- Three individuals with cutaneous lesions on the red areas of tattoos
- Significant levels of Chromium and Nickel should be considered as the causes of possible dermal reactions
- “Permanent tattoos appear to be unsafe, considering the increasing number of diagnosed pseudolymphomas.”

- 48 year old female with extensive bilateral keloids of ear and neck post piercing

- Photo guide to removal of surface anchors by emergency departments
- Case report of unusual case of florid pseudoepitheliomatous hyperplasia mimicking a well-differentiated squamous cell carcinoma and restricted to the red part of a rose tattoo

- Survey of 607 high school students in Istanbul
- 4.8% had tattoos & 7% had piercings
- “The adolescents with tattooing and body piercing were found to have a higher frequency of alcohol and drug use, smoking, going to bars/night clubs and lower school grades when compared to those without tattooing and body piercing. Externalizing problems, mainly delinquent and aggressive behaviours were more prominent in the adolescents with tattooing and body piercing. Tattooing and body piercing in adolescents may be indicative of mental health risks.”

- Young woman with profound anemia, but also with high serum iron levels
- Found to have large black tattoo and iron oxide from the tattoo ink absorbed into body resulting in increased iron levels
- “… this case report reinforces the imperative to always do a careful physical examination with any patient who has anemia, and also illustrates the potential toxicity of tattoo ink.”

- Conservative treatment and use of Bionect Start resulted in complete resolution and reepithelialization of the lesions, in addition to perfect preservation of the colors of the tattoo.

- Survey/patch testing of 4,376 15-23 year old students in Sweden
- 86% of girls & 21% of boys had piercings (present or past)
- 6% of girls & 3% of boys had tattoos
- Piercing, female gender, and vocational programme increased the risk of nickel allergy
- “High nickel containing orthodontic appliances preceeding piercing reduces the risk of nickel sensitization by a factor of 1.5-2.”

- Only 4% of young adult survey participants identified infectious diseases that can be transmitted through body art

- Adult patient with lichenoid reaction to organic red tattoo
- “The chemically unstable and reactive nature of modern tattoo pigments has to be taken into account by the clinician as well as by the tattoo recipients.”

- An estimated 24,459 oral piercing injuries presented to US ER’s during the 7-year period
- 14-22 year old’s were 73% of visits
- Injuries included: Lips (46%), tongue 42%, teeth 10%
- Infections: 42% and soft tissue puncture wounds 29%
- 39% of visits resulted from patient’s inability to remove mucosally overgrown oral piercings
- “National data indicates that dentists working in emergency departments should be prepared to manage oral hard and soft tissue complications caused by oral piercings.”

- Greater prevalence of tooth and periodontal defects in subjects with tongue or labial piercings

- Overview of methods to optimize successful laser removal of tattoos

- Arguments that the law prohibiting the tattooing of minors should be repealed to hopefully decrease teens doing tattoos on each other with unsafe equipment and instead have tattooing done by professionals that are regulated and licensed
- 33 y/o male with several papules on tattoo received 5-months prior

- Analysis of 50 patients affected by treatment errors caused by medical laypersons with laser and intense pulsed light technology
- 81% pigmentation changes, 25% scars, 14% textural changes, & 4% incorrect information
- Sources of error: 63% excessively high energy, 40% wrong device for the indication, 21% treatment of patients with darker skin or marked tanning, 7% no cooling, & 4% incorrect information
- “Direct supervision by a medical specialist, comprehensive experience in laser therapy, and compliance with quality guidelines are prerequisites for safe laser and IPL treatments. Legal measures to make such changes mandatory are urgently needed.”

- Survey of 8656 men and women, ages 16-64 in Australia
- Total of 14% had ever been tattooed
- More men than women report getting a tattoo, but highest rates of tattooing was among women in their 20’s
- Men & women ages 20-39 were most likely to have been tattooed

- 154 patients with 342 tattoos
- 27% had complaints about their tattoo beyond 3-months post-tattooing, mostly with black and red pigments
- 58% of complaints were sun induced
- Most frequent complaints were skin elevation and itching
- 80% overall satisfaction with their tattoos

- Great overview article of medical issues associated with body piercings
- Extensive charts and references
- "Despite the widespread use of laser therapy in the removal of tattoos, comparatively little is known about its mechanism of action. There is a need for improved understanding of the composition and thermal properties of the tattoo ink in order that simulations of laser therapy may be better informed and treatment parameters optimized."
- The analysis of tattoo ink was substantially different than the commonly used in laser simulations reference points of water and graphite.

Hwang, K., et al. (2012). Which type of earring and which piercing point is safest with regard to tearing through the ear by an external force? Dermatol Surg. 38(5). 772-777.
- "The 4mm point (from the lowest point of the ear) is recommended for hoops, buckles, and studs, and the 8mm point or higher (from the lowest point of the ear) is recommended for screws and hooks."

- Significantly higher amounts of plaque accumulation on teeth adjacent to lateral lower lip piercings
- Small percentage of lateral lower lip piercings may cause tooth chipping or buccal recession in adjacent teeth

- Overview of psychological/psychoanalytic issues with tattoos

- Almost complete prevention of pain with application of local anesthestic cream prior to tattoo

- Outbreak (19 patients) with mycobacterium infection from pre-mixed tattoo ink

- Extensive overview of literature about tattoo removal techniques

- 7 patients with allergic contact dermatitis after initial hair or eyelash dyeing
- All had a history of a previous reaction from a black henna tattoo
- There remains an urgent need to implement evidence-based infection control measures, including needle and syringe programs, within prison settings

- Brief discussion of young female who underwent tattooing during pregnancy (baby did fine)
- “The question of the potential distribution of tattoo pigments, various component and by-products beyond the skin and local lymph nodes in the systemic circulation and therefore, possibly through the placenta during pregnancy or in the milk, is not known.”
- “Overall data regarding the potential risks of undergoing tattooing during pregnancy or breastfeeding is inexistent. However, it remains wise to suggest abstention of tattooing procedure from the pregnancy diagnosis until the end of breastfeeding… Additionally, the risk for the foetal development in heavily tattooed mothers is not known either. The risk related to tattooing as a potential environmental occult source of toxic chemicals for the foetus should be thoroughly investigated.”

- Review of medical aspects associated with genital piercings, but also the social, cultural, and psychological backgrounds that surround these piercings

- “The introduction in the dermis of exogenous pigments and dyes to obtain a permanent design (tattooing) represents a unique in-vivo situation, where a large amount of metallic salts and organic dyes remain in the skin for the lifetime of the bearer.”
- The potential local and systemic carcinogenic effects of tattoos and tattoo inks remain unclear
- Review of literature: 50 cases of skin cancer on tattoos
- The number of skin cancers arising in tattoos is seemingly low, and this association has to be considered thus far as coincidental”

- “As this population gradually ages, physicians will be increasingly called on to treat tattooed areas, either for surgical removal of the tattoo itself or or excision of a suspect lesion or skin tumour, or for incision of the skin in a setting of either elective or emergency visceral surgery.”
- Summary of surgical situations potentially arising in tattooed patients
- Excellent overview of the post-tattoo medical complications that ER’s may encounter with full-color photos of same
- “Tattooing remains a relatively safe procedure when performed by “professional” artists who have received education on appropriate hygiene technique and the preparation and maintenance of materials and who apply strict sanitary precautions in their tattoo shops. However, the reports of complications remind us that there is still much to do to improve the safety of tattooing for customers.”

- Summary of piercing/medical issues
- “A non-judgemental approach is recommended, when a pierced patient seeks medical help for a piercing complication or any other health issue.”

- Review of patients who have tattooed their medical information on their own without medical consultation

- Great overview of complications that occur within the first month after tattooing that emergency physicians may encounter and have to manage

- 18 tattoos on 12 adults
- ½ received conventional single treatment pass laser treatment
- ½ received 4 treatment passes with 20 seconds between
- “The R20 method is much more effective than the conventional laser tattoo treatment, removing most tattoos in a single treatment session. New laser device technology is not required to practice this method.”

- 8 patients with nasal granuloma pyogenicum post-nose piercing
- “piercing by non-professional or unskilled persons, use of non-sterile piercing instruments, and poor standards of hygiene in the case of the puncture site are the most important factors accountable for such complications.”

- Review of ear piercing complications and resultant deformities
- Overview of outbreak of infections associated with contaminated tattoo ink

- “Results indicated that high ear piercing is an invasive procedure with a significant risk of complications leading to cosmetic deformity. Establishments should be required to counsel patients properly about the risks and potential complications of the procedure. A code of practice should be drawn up with a minimum age for piercing, requirement for proper consent, excellent hygiene and good information for postoperative care.”

- Overview of laser tattoo removal techniques

- 49 undergraduates were shown pictures of a man and woman with piercings and no piercings
- The pierced model was judged to be less attractive and less normal than the non-pierced model. The pierced model was perceived as less intelligent, caring, generous, honest, and religious, but more artistic and mysterious

- Sentinel case of diphtheria in an adult male – Contracted with tattooing in Samoa

- “Permanent tattoos have become increasingly common, with 21% of adults in the United States having at last one tattoo.”
- Multiple state outbreak of skin infections post-tattooing due to contaminated ink
- “contamination of inks can occur during the manufacturing process as a result of using contaminated ingredients or poor manufacturing practices, or when inks are diluted with nonsterile water by tattoo artists. No specific FDA regulatory requirement explicitly provides that tattoo inks must be sterile. However, CDC recommends that ink manufacturers ensure ink is sterile and that tattoo artists must avoid contamination of ink through dilution with nonsterile water.”
- Survey of 120 adults, ages 20-35
- 3 groups: 60 with no-body mods, 28 with tattoos & 32 with piercings
- “Having body modifications is associated with early sexual initiation and more liberal attitudes toward sexual behaviors, but not with engaging in risky sexual behaviors.”

- Use of infrared/ultraviolet photography to document a non-visible to the naked eye tattoo in a mummified person to assist in identification

- “An increase in consumer complaints has prompted FDA investigation into tattoo inks and their safety. It is important that further complications be reported to the FDA to promote regulation of cosmetic tattoo inks.”

- 110 people with 110 lip & 51 tongue piercings
- Dental issues were greater for tongue than lip piercings
- Gingival recession is similar for tongue and lip piercings

- “Our findings suggest that the Q-switched alexandrite laser is an effective laser in removing amateur tattoos in patients with skin phototype V, but with a high incidence of pigmentary changes”

- “The presence of body piercings is not related to any particular health concern…”
- “These results contradict previous studies citing a relationship with high-risk health behaviours.”

- Perfluorodecalin (PFD) facilitated multiple-pass tattoo removal
- Professional football player with temporary “burn” to tattoo site during MRI
- “At risk” tattoos are those with black pigment or any other pigments with iron oxide, as well as those with a design that displays loops, large circular objects, or multiple adjacent points
- Reaction only temporary – no permanent sequelae
- “This is likely an underreported issue that merits attention in the sports medicine literature given the frequent occurrence of cosmetic tattoos in athletes requiring magnetic resonance imaging to diagnose a musculoskeletal injury.”

- Overview of history and evolution of quality-switched lasers for tattoo removal

- All 12 patients obtained greater than 75% clearance of tattoo ink
- “The picoseconds 755-nm alexandrite laser is a safe and very effective procedure for removing tattoo pigment.”

- 2 adult cases of diphtheria related to tattooing
- First case developed infection after being tattooed in Samoa
- Second case developed infection after being household contact with case #1

- 4 patients with mycobacterium infection from contaminated tattoo ink (same bottle)

- “The composition of tattoo inks is highly variable, and inks can contain numerous potentially allergenic or carcinogenic compounds. Infections with bacterial, viral and fungal species can occur after tattooing, sometimes after substantial delay. Atypical mycobacterial infections in particular are increasingly reported; special stains for mycobacteria should be performed and cultures recommended particularly when dense, mixed, or granulomatous infiltrates are present.”

- Review of “oral mutilation practices” of concern to dental professionals
- Survey of patients waiting for a physician appointment
- “The entire sample judged it inappropriate for clinicians to have long hair, visible tattoos, body piercing…”

- 26 y/o male with tongue piercing placed 5 years prior to developing tongue cancer from which he died 18-months later

- “With the increase in popularity of piercings, the health care professional needs to be aware of the complications that can occur due to lack of regulations of the piercing establishments. Due to lack of training of piercing professionals and lack of enforcement of sterilization procedures, infection and life threatening complications can arise.”

- In the absence of infection, chronic nipple piercing is not associated with hyperprolactinemia

- 25 year old healthy male with mycobacterium infection in an amateur tattoo
- Required antibiotics for 10 months for treatment
- Suggests skin biopsy to differentiate tattoo-skin reactions vs. infection

- 136 British residents going for first tattoo compared with those visiting as shop, but decided not to get a tattoo
- “As compared to individuals who did not subsequently obtain a tattoo, individuals that did were significantly less conscientious, more extraverted, more willing to engage in sexual relations in the absence of commitment, and had higher scores on sensation seeking, need for uniqueness, and distinctive appearance investment.”

- Compared to non-tattooed individuals, tattooed participants had significantly higher scores on extraversion, experience seeking, need for uniqueness, and held more positive attitudes toward tattoos
- Review of the use of Q-switched laser tattoo removal technique

- “Studies that specified the venue of tattooing and/or piercing showed no definitive evidence for an increased risk of HCV infection when tattoos and piercings were received in professional parlors. However, the risk of HCV infection is significant, especially among high-risk groups when tattoos are applied in prison settins or by friends”

- 28 year old with reaction to invisible tattoo ingredients

- 27 year old woman with an angioedema-like reaction occurring after the first exposure to hair dye who was unaware of being previously sensitized to PPD from a black henna tattoo

- Child with allergic contact dermatitis post-temporary tattoo

- Other conditions for temporary ineligibility… piercing, tattoo…

- 150 adult patients compared pictures of male and female careproviders in uniform with and without tattoos and/or non-earlobe piercings
- “Patient care providers with visible tattoos and/or body piercings were not perceived by patients in this study as more caring, confident, reliable, attentive, cooperative, professional, efficient, or approachable than non-tattooed or non-pierced providers”
- “Tattooed female providers were perceived as less professional than male providers with similar tattoos”
- “Female providers with piercings were perceived as less confident, professional, efficient, and approachable than non-pierced female providers.”

- Overview of increasing use of micropigmentation for permanent cosmetics
- 32 y/o female with red papules in tattoo – sarcoidosis

- Young adult patient with (2) black stained sentinel lymph nodes following treatment for melanoma
- “History of tattooing and tattoo removal should be obtained as a routine in all melanoma patients considered for sentinel node biopsy.”

- 9755 high school students in southern Taiwan
- 1% had tattoos
- The older students who were perceived to have low family monitoring and who had friends who drink regularly, used illicit drugs, had a criminal record or were in a gang were more likely to have a tattoo
- Tattooing was also found to be associated with violence, weekly alcohol consumption, illicit drug use, dropping out of school, unprotected sex, suicidal ideation/attempt, and depression

- Development of printed temporary transfer tattoo electrochemical sensors and demonstration of “electronic skin”

- Continuing studies of using tongue piercings to access computers/power wheelchairs in those with mobility impairments

- 21 y/o male with partially rigid penis x 3 months since tattoo on penis
- Arterial priapism was the cause

- “Tongue piercing is correlated with an increased occurrence of enamel fissues, enamel cracks, and lingual recessions. Patients need better information on the potential complications associated with tongue piercing.”