

# CASE In...

## Tattooing Issues

# Tara's Turmoil: Tattooing Issues



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Body modification has been practiced throughout the world for thousands of years. With the recent increasing popularity of tattoos and body piercing, patients may look to their physicians for advice prior to having modifications performed. Doctors are also faced with treating the complications of these procedures, such as skin reactions from temporary tattoos. Both physicians and patients have concerns regarding tattoos and MRI scans, as well as tattoos and lumbar procedures.

*Health Canada quotes an American university survey which found that 51% of students had body piercing and 23% had tattoos.*

Tattooing has been practiced in diverse cultures on all continents. Prevalence data are difficult to collect and often inaccurate. In 2003, one poll found that 16% of US adults are tattooed, including 36% of those aged 25 to 29.<sup>1</sup> Health Canada quotes an American university survey which found that 51% of students had body piercing and 23% had tattoos.

Permanent tattoos are by far the most common. There have been case reports of many

### Tara's Quest for Info

Tara, 28, is an otherwise healthy young woman contemplating getting a tattoo over her lower back.

She's spoken with friends who tell her that if she gets a tattoo there, should she become pregnant, she won't be able to have epidural anesthesia during labor.

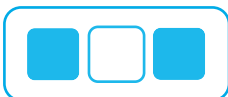
Tara did some reading on the Internet and on chat groups and she found that some women have been refused epidurals because of tattoos over their lumbar vertebrae.

**What information can you offer Tara? Go to page 28 to find out.**

blood-borne diseases being transmitted by unsanitary tattooing practices and the sharing of dyes or equipment. Among these are:

- HIV,
- hepatitis B,
- hepatitis C,
- TB,
- human papillomavirus (causing local infection at the tattoo site),
- *Streptococcus* and
- *Staphylococcus* infections.

As well, there are concerns with tattoo dyes; although, many of these have been sensationalized by popular media. Up until 20 years ago, many tattoo dyes contained relatively large metal fragments; dyes developed more recently are associated with fewer complications, but there are still theoretical risks involved with permanent tattoos.



Metal-based tattoo dyes include ingredients such as:

- aluminum,
- titanium,
- chromium,
- lead and
- nickel.

There has been little research into possible systemic exposure to these metals after deposition into the skin. Newer acrylic and vegetable-based pigments are being developed, but are not popular among tattoo artists or patrons. They are less popular because they:

- tend to be less vibrant in colour,
- tend to leech out of the dermis, (causing fading of the artwork over time) and
- can potentially lead to more systemic exposure to the dye.

One common misconception of tattoos is their danger when coupled with the strong magnetic fields of an MRI scan. The popular TV medical drama *House* showed a patient in agony during an MRI due to the metal pigment of his tattoo being dramatically torn from his skin. There have been anecdotes and case reports of minor burns with tattoos interacting with the magnetic field during an MRI and causing heating of the tattoo in the skin.<sup>2</sup> This is more likely



## Info for Tara

You may reassure Tara that getting a permanent lumbar tattoo is likely safe.

She should carefully research the tattoo parlor and artist before she allows them to perform the tattoo. They should be able to show evidence of observing universal precautions.

In addition, Tara should be counseled on options, such as limiting the size and extent of her lumbar tattoo, so as to allow some access to lumbar interspaces that are commonly used during epidurals and lumbar punctures.

By choosing a design that keeps the midline clear from dye, Tara can have her tattoo and enjoy epidural anesthesia, should she require it.

Resources for Tara:

- Health Canada publishes advice for people contemplating tattoos:  
[http://www.hc-sc.gc.ca/iyh-vsv/life-vie/tat\\_e.html](http://www.hc-sc.gc.ca/iyh-vsv/life-vie/tat_e.html)
- Many provinces publish standards of practice for tattoo parlors. Alberta Health's standards of practice may be found at:  
<http://www.health.gov.ab.ca/resources/publications/pdf/Tattoo.pdf>

to occur with darker pigments that contain iron oxides. The heating effect may be alleviated by placing a pressure bandage over the area before MRI scanning and if symptoms are noted, judicious use of ice packs should be used after the scan.

Another common controversy in both the public and medical communities relates to the risk of epidurals, lumbar punctures (LPs) and spinal anesthesia through a lumbar tattoo.

There have been case reports of epidermoid tumors developing at sites of previous epidurals and LPs, but there have been no documented cases of similar problems arising from tattoo

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Figure 1a. A temporary tattoo containing paraphenylenediamine (PPD)-based dye, shortly after application.



Figure 1b. The same tattoo 10 days later, with skin irritation caused by PPD.

Temporary tattoos are also common and can be associated with medical problems. Henna paste and various other dyes are applied to the skin, left on for several hours and then washed off, leaving dyed skin, which fades over days to weeks. Henna is generally considered safe.

*Black henna*, paraphenylenediamine (PPD), is a common additive to temporary tattoo mixtures, fabric and hair dyes. The term *black henna* is a misnomer—it is not related to henna at all. Health Canada has published warnings about skin reactions from PPD. Common reactions include blistering and burning of the skin, which can take weeks to heal. PPD is particularly found in temporary tattoo preparations that are sold to tourists on beach holidays. Reactions often occur after the vacationer has returned home (Figure 1).

PPD leaves skin dyed black instead of orange or brown, as with regular henna. If patients were instructed to remove the paste within minutes rather than the usual hours with henna paste, then it is likely that there was PPD in the mixture.

With the dramatic increase in tattooing in the past several years, it is reassuring that there has not yet been a dramatic increase in medical complications of this body modification technique. As our experience grows, both physicians and patients need to continue to be mindful of potential problems.

dyes being introduced into the paraspinal spaces, although a theoretical risk of this does exist.<sup>3-4</sup>

Given the large number of epidurals and lumbar punctures that are performed, the risk of subsequent associated tumors and inflammation appears exceedingly low; however, the long-term risks are unknown at this time.

*One common misconception of tattoos is their danger when coupled with the strong magnetic fields of an MRI scan.*

**cme**

#### References

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4. Douglas MJ, Swenerton JE: Epidural anesthesia in three patients with lumbar tattoos: A review of possible implications. *Can J Anesth* 2002; 49(10):1057-60.