Neuraxial Anesthesia Through Tattoos: Is it Safe Puncturing The Dragon?

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Citation

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Abstract

Sir:

Tattoos have become increasingly popular. In the United States, more than 45 million people have tattoos[1]. Almost 50% of all tattoos are being done on women[2]. I have seen an increasing number of women with lumbar midline tattoos requesting labor epidurals. Neuraxial anesthesia in the lumbar region with a tattoo brings up the concern of introducing the pigment into the central nervous system. Many of us have surely asked ourselves at one time or another "Should I place the spinal or epidural needle through the tattoo or not through the tattoo if possible?". As I have found, the practice among anesthesiologists varies. A survey in England revealed that 65% of consultant anesthetists with obstetric sessions place the needle through the tattoo during spinal or epidural anesthesia[3] .

The main concern in performing neuraxial anesthesia through a tattoo rests

in the safety of the presence of the pigment of the tattoo in the intrathecal or the epidural spaces. Vasold et al. provided in vitro evidence that the tattoo pigments, (industrial

pigments not intended for human use by the chemical industry but rather to stain consumer goods) contain toxic and carcinogenic compounds, such as 2-ethyl-5-nitroaniline, 2,5-dichloraniline and 4-nitro-toluene[4]. More organic pigments are being used, yet the individual being tattooed or the tattoo artist may not know the composition of the ink. Hollow needles, with or without a stylet entrap tissue fragments (cores) in the bore as they pass into deeper tissues[5]. It is possible that introducing a needle through the pigment of a tattoo may result in a tissue core that contains pigment being introduced into deeper tissues. Subsequent injection may result in the entrapped tissue fragments containing pigment being deposited into the epidural, subdural, or subarachnoid spaces. The risk of introducing exogenous pigments into the epidural, subdural, or subarachnoid spaces may be clinically significant, because introducing exogenous pigments into these spaces may cause a chemically-induced arachnoiditis or result in the development of an epidermoid tumor[6].

Although to date, there are no reported complications from inserting an epidural or spinal needle through the tattoo, this could be because in the past fewer patients had tattoos involving the midline of the lower back. Also, complications may take time to develop and it may be too early to see these complications which may occur later in time. Furthermore, the relation of the complication to the tattoo may not be made if time has passed. Therefore, because of safety concerns of introducing pigment into the intrathecal or epidural spaces with the use of hollow needles through tattoos during neuraxial anesthesia, and no specific guidelines to follow, a safe approach should be attempted. Therefore, the anesthesiologist might choose to avoid skin puncture through the pigment of the tattoo by selecting a different vertebral interspace, using the paramedian versus the midline approach, or finding an area free of pigment within the area of tattoo. When this cannot be accomplished, one may choose to nick the skin before inserting the spinal or epidural needle. The size of the nick should be larger than the needle being inserted and should penetrate through the dermis. This may minimize the incidence of coring. Finally, the patient with a tattoo should always be informed of the risks of this procedure.

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