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<td><strong>Author(s)</strong></td>
<td>Woo, PC; Lin, AW; Lau, SK; Yuen, KY</td>
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Acupuncture transmitted infections

Are underdiagnosed, so clinicians should have a high index of suspicion

Acupuncture, which is based on the theory that inserting and manipulating fine needles at specific acupuncture points located in a network of meridians will promote the harmonious flow of “Qi,” is one of the most widely practised modalities of alternative medicine. Because needles are inserted up to several centimetres beneath the skin, acupuncture may pose risks to patients. One of the most important complications is transmission of pathogenic micro-organisms, from environment to patient or from one patient to another.

In the 1970s and 1980s most infections associated with acupuncture were sporadic cases involving pyogenic bacteria.² So far, more than 50 cases have been described globally. In most cases, pyogenic bacteria were transmitted from the patient’s skin flora or the environment because of inadequate skin disinfection before acupuncture. In localised infections, meridian specific and acupuncture point specific lesions were typical. About 70% of patients had musculoskeletal or skin infections, usually in the form of abscesses or septic arthritis, corresponding to the site of insertion of the acupuncture needles.¹,² A minority had infective endocarditis, meningitis, endophthalmitis, cervical spondylitis, retroperitoneal abscess, intra-abdominal abscess, or thoracic empyema.³,⁴,⁵

As in other musculoskeletal or skin infections, *Staphylococcus aureus* was the most common bacterium responsible, accounting for more than half of the reported cases.¹,² Although most patients recovered, 5–10% died
of the infections and at least another 10% had serious consequences such as joint destruction, paraplegia, necrotising fasciitis, and multiorgan failure.\textsuperscript{1,2}

Apart from pyogenic bacterial infections, five outbreaks of hepatitis B virus infection associated with acupuncture, which affected more than 80 patients, have been described globally since the 1970s.\textsuperscript{3,4} In most outbreaks the sources were infected patients, and the virus was transmitted from one patient to another through improperly sterilised or unsterilised reusable acupuncture needles, but in one outbreak an acupuncturist who was positive for hepatitis B surface antigen and hepatitis B e antigen was thought to be the source.\textsuperscript{5,6}

The other two major bloodborne viruses, hepatitis C virus and HIV, could hypothetically be transmitted by acupuncture. Most evidence for the association of hepatitis C virus infection with acupuncture came from epidemiological and case-control studies, where acupuncture was found to be an independent risk factor for hepatitis C virus infections.\textsuperscript{7} Although no clear evidence exists to support a link between acupuncture and HIV infection, there are reports of patients with HIV who had no risk factors other than acupuncture.\textsuperscript{8}

A new clinical syndrome has emerged in the 21st century—acupuncture mycobacteriosis—which is mainly caused by rapidly growing mycobacteria.\textsuperscript{9} These mycobacteria are thought to be transmitted from the environment to patients via contaminated equipment used in acupuncture, such as cottonwool swabs, towels, hot pack covers, and boiling tanks. All mycobacterial infections associated with acupuncture so far have been characterised by localised meridian specific and acupuncture point specific lesions without dissemination.\textsuperscript{10} The lesions usually first appear as erythematous papules and nodules that subsequently develop into large pustules, abscesses, and ulcerative lesions after several weeks to months. Patients tended to delay seeking medical advice because of the slowly developing and relatively mild symptoms. Owing to the relatively hardy nature of mycobacteria,\textsuperscript{10} the long incubation period of the infection, and the difficulty in making a diagnosis, mycobacteria have caused two large outbreaks associated with acupuncture, which affected more than 70 patients.\textsuperscript{11,12}

The case reports and outbreaks of acupuncture transmitted infections may be the tip of the iceberg. The first reports of meticillin resistant \textit{S aureus} (MRSA) transmitted by acupuncture appeared in 2009.\textsuperscript{2} The emergence of community associated MRSA infections may aggravate the problem. To prevent infections transmitted by acupuncture, infection control measures should be implemented, such as use of disposable needles, skin disinfection procedures, and aseptic techniques. Stricter regulation and accreditation requirements are also needed.

Clinicians should also have a high index of suspicion, particularly for viral and mycobacterial infections transmitted by acupuncture because of their prolonged incubation periods, and they should alert health authorities about clusters of cases.

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