Blood brothers: tattoo sepsis in two Samoan men
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Traditional Samoan tattooing (tatau) is a cultural process that dates to 1500 BC. Customary tools consist of a boar tusk comb with sharp teeth and wooden mallet. To reduce the risk of infection, the equipment should be sterilised prior to application, between applications and between different sites.

We present the cases of two Samoan brothers admitted to Wellington Hospital in March 2020 with infective complications following traditional Samoan tattooing performed by a visiting Tufuga.

Case reports

Patient 1
A 45-year-old Samoan man presented to Wellington Hospital Emergency Department with a rash, wheeze and light-headedness approximately 12 hours after completing five days of traditional tattooing using titanium steel needles. At completion, coconut oil and turmeric were rubbed over the tattoos. By the following morning, he developed tongue swelling, wheeze and a pruritic, urticarial rash over his arms. He was otherwise well with no comorbidities.

He was initially treated for an allergic reaction. However, he subsequently became febrile (39.1°C), hypotensive (104/61mmHg) and tachycardic (HR 120bpm). His legs were noted to be swollen, erythematous and tender with yellow serous fluid oozing from tattoo sites on the left thigh. He responded well to fluid resuscitation and was started on IV flucloxacillin for widespread cellulitis. The specific aetiology for the allergic reaction in case one could not be identified as more than one agent had been used prior to the symptoms developing.

Laboratory tests showed an acute kidney injury (AKI) with a creatinine of 117umol/L. C-reactive protein (CRP) was 78mg/L with a normal white cell count. Creatinine kinase was 1,126U/L but without evidence of deep tissue infection. Two sets of blood cultures taken at admission grew flucloxacillin-susceptible Staphylococcus aureus.

The patient voiced distress, reporting that damage to the tattoo would be a ‘bad omen’ for the family. A cream containing dexpenthaneol and benzalkonium chloride was applied and 60mg of oral prednisone daily was started to decrease inflammation. The patient was discharged on day four to complete a 14-day course of 1g oral flucloxacillin QID and 500mg probenecid QID. The prednisone was weaned over seven days.

Patient 2
A 43-year-old Samoan male, the brother to Case 1, presented to Wellington Hospital ED with two days of subjective fevers and leg swelling following ta tatau. He was febrile on admission (38.6°C), had bilateral lower limb swelling and erythematous areas bilaterally over his arms. He had extensive tattooing over the back and lower legs as per his brother (above) with widespread erythema and tenderness over these regions. He was medically stable on arrival but was started on IV flucloxacillin and oral clindamycin for extensive cellulitis. Blood
cultures and swabs yielded no growth. Initial bloods revealed CRP of 122 but normal renal function.

IV flucloxacillin was continued for one and a half days and then switched to oral Flucloxacillin to complete a seven-day course. Clindamycin was stopped on Day 2.

The Medical Officer of Health was informed of both cases.

Discussion

New Zealand has the largest Pacific community outside of the Pacific islands, making up 7.4% of the population. Tatau remains an important part of the Samoan culture in New Zealand and the tufuga ta tatau operating here may be local or from Samoa.

Ta tatau historically took weeks or years to complete, however the modern approach compresses the process to days and subsequently decreases the time for healing. Although there is no formal prevalence data on infective complications, the international literature indicates that the practice can result in severe sepsis including death. In New Zealand, a cluster in 2011 in the lower North Island demonstrated 10 cases for a population of 420,000, seven of whom were confirmed to be from the same Tufuga and two of whom had life-threatening sepsis requiring surgical debridement. One of these patients had necrotising fasciitis. However, routine data on infective complications is not collected.

A previous public health investigation found that tufuga had poor infection control knowledge and inadequate procedures for sterilisation of equipment. Patients may also present late due to cultural expectations for community management. Although the brothers presented here avoided significant morbidity, their infections required in-patient treatment and indicated septic complications in consecutive patients for the same tufuga.

Concerns around infection control in traditional tattooing have resulted in some councils developing their own guidelines or bylaws. Wellington City Council currently has no regulations in place nor any procedures for monitoring this practice, but they are considering a bylaw. From a national perspective, although the Crimes Act and the Health and Safety Employment Act provides some legislative regulation, there is no specific law to cover traditional tattooing. The Ministry of Health has a guideline written in conjunction with tufuga, Samoan elders and infectious disease experts, but there is no mechanism to enforce the recommendations or monitor compliance.

These cases highlight the serious infective complications that can arise from traditional tattooing and the current lack of regulation around the practice. Our Samoan community is projected to rise and the practice of ta tatau is likely to rise with it. Although challenging to implement (given that ta tatau may take place in private homes), we recommend a consistent nationwide approach to regulation with consideration given to a registry for tufuga with provisions for infection control training as well as health and safety assessment and monitoring of practice.
CLINICAL CORRESPONDENCE

Competing interests:
Nil.

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