CASE REPORT

Filling the void: a case of sepsis following the injection of a penile bulking agent

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SUMMARY

Many cosmetic procedures are now performed by non-medical personnel. Owing to the wide coverage of aesthetic procedures by the media, patients may be less informed of the serious complications that can be seen when impure materials are injected by less-skilled practitioners. The authors present a case of sepsis following the injection of a non-medical grade penile bulking agent. Although penile augmentation is under-reported in the literature, public interest in such procedures is increasing. The growing demand for such procedures needs to be addressed by the medical community.

BACKGROUND

Injectable dermal fillers have become an increasingly popular cosmetic procedure. However, due to their commercial potential and aesthetic popularity, these procedures are also now being performed in non-clinical settings, where regulation of the injectable materials is less stringent. The nature of cosmetic surgery has meant that non-surgical cosmetic procedures are often trivialised by the media. While many procedures are generally quite safe, even non-surgical procedures carry potential risks and problems, especially where there are uncertainties regarding the purity of the injected material. The general demedicalisation of cosmetic procedures has compromised patient safety, as these procedures are now performed at lower costs by unskilled or poorly trained practitioners who are often working in non-medical environments. It should be noted that the majority of adverse case reports, including our patient, had procedures which were performed by non-medical personnel using silicone-based fillers of unknown purity or volume.^{1–3}

CASE PRESENTATION

A 29-year-old fit and healthy man presented to the emergency department reporting a 4-day history of penile pain and swelling, associated with fever and rigours. He reluctantly admitted to undergoing penile augmentation 10 days prior to the onset of symptoms. The procedure was carried out in eastern Europe in a non-clinical setting, and involved the subcutaneous injection of a dermal filler with the aim of increasing penile girth.

He had signs of sepsis on arrival to the department and the following observations were recorded: temperature (38.9°C), pulse rate (130/min) and blood pressure (99/51 mm Hg). On examination, his penis was swollen, hot and tender (figure 1).

The foreskin appeared erythematous but viable and the erythema extended proximally to involve the scrotum. He was not circumcised but due to the underlying infection and oedema it was not possible to retract the foreskin. There was no penile discharge noted. Testicular examination was unremarkable.

INVESTIGATIONS

A full blood count revealed a neutrophilia (white cell count $14.3 \times 10^9/L$, neutrophils $11.6 \times 10^9/L$). Blood and urine cultures failed to grow any organisms. He was fluid resuscitated with 3 L of crystalloid solution and started empirically on intravenous coamoxiclav and gentamicin.

TREATMENT

Once medically stable the patient was taken to operating theatre for emergency debridement of the infected material. A dorsal longitudinal incision was made and the penis was degloved through a circumferential incision in the distal foreskin at the level of the corona (figure 2). This revealed numerous pockets of infected tissue which were embedded with silicone granulomata (figure 3). A sample of the exudate was taken and sent for culture and sensitivity. The residual necrotic tissue was debrided down to healthy tissue. Fortunately, the remaining penile skin was sufficient to allow primary closure of the foreskin to the corona giving a cosmetically excellent result (figure 4).

OUTCOME AND FOLLOW-UP

The patient made an uneventful postoperative recovery. The exudate sampled in theatre grew β -haemolytic streptococci which was resistant to penicillin. The coamoxiclav and gentamicin were

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Figure 1 Scrotal findings on initial presentation.

Figure 2 Degloving of penis.

discontinued and he was started on vancomycin as per microbiology advice. He continued to improve and was discharged home 5 days later. He failed to attend a 6-week clinic appointment for wound review and was subsequently lost to follow-up.

DISCUSSION

Throughout evolution, the presence of an enlarged sexual organ has been considered an indicator of strong body composition and reproductive fitness.⁴ Even in modern times, penile length and girth have been intrinsically linked to masculinity and sexual prowess. Cosmetic surgery has been widely commercialised by the media, leading many individuals to explore the aesthetic enhancement of traits which were previously dictated by genetic predisposition. Although the use of dermal fillers to treat facial lines and wrinkles is well established, the majority of cosmetic surgeons do not publically advertise procedures for penile augmentation. Penile girth procedures are under-reported in the literature and our case report is among the first reported cases of infection following injection of a penile bulking agent. However, public interest in penile augmentation is increasing. Over 6500 Google searches are performed each month using the search terms 'penile augmentation', 'penile girth' or 'penile enlargement'. The unmet demand for such procedures may be an additional factor influencing a patient's decision to have these procedures performed abroad or in non-clinical environments.

Silicone was introduced as an injectable filler in the 1940s when it was first used in Germany, Switzerland and Japan.⁵ In theory, the biologically inert nature of silicone makes it an ideal substance for injection or implantation. It is permanent, non-carcinogenic and is inhospitable to bacterial growth.³ In spite of these characteristics, silicone unfortunately failed to gain Food

Figure 4 Satisfactory postsurgical cosmesis.

and Drug Administration (FDA) approval in 1969, when a phase II trial reported several patients who developed facial necrosis and panniculitis following injection of large volumes of the substance.⁶ Although safer injection techniques have been described, in particular the microdroplet method,⁷ legal issues have prevented any further meaningful trials. However, silicone continues to be used on an off-label basis.⁵ This separation from licensed practice means that injectable silicone often does not undergo the same degree of scrutiny or regulation as the FDA approved dermal fillers. Several temporary dermal fillers, for example, hyaluronic acid, have gained FDA approval in recent years but the high associated cost and requirement for repeat injections have unfortunately led many individuals, including our patient, in search of less-expensive alternatives.

In conclusion, the biological properties of medical grade silicone make it an ideal substance for implantation. However, as the material is not licensed for use as a soft tissue filler, the quality of silicone used is under-regulated and can contain heavy metals and other impurities. It is important to distinguish between the use of medical grade silicone injected by licensed

Figure 3 Excision of infected silicone granulomata.

physicians and industrial grade products injected by unskilled practitioners. Although many cosmetic procedures have a low-risk profile, patients should take care to ensure these procedures are carried out by suitably qualified personnel using medical grade products.

“Youth tries to fill the void, an old man learns to live with it.”
Mark Z. Danielewski (American Author)

Learning points

- ▶ Silicone has inert properties which in theory make it an ideal injectable filler. However, poor regulation of its distribution means that the silicone-based materials injected can contain impurities.
- ▶ Many cosmetic procedures are now performed by non-medical personnel. Owing to the wide coverage of aesthetic procedures by the media, patients may be less informed of the serious complications that can be seen when impure materials are injected by less-skilled practitioners.
- ▶ This study highlights the need for increased patient awareness regarding the dangers of having cosmetic procedures performed in a non-clinical setting.

Contributors All the authors were involved in the management of the case described. ER wrote the manuscript with the help of JCF. HDF reviewed the final draft.

Competing interests None.

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