

## Self injection of foreign materials into the penis

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### ABSTRACT

Injection of the subcutaneous tissues of the penis for penile girth augmentation has been practised for a number of years both lay people and medical practitioners. However, with the recognition of complications, the practice is encountered less frequently. We report a series of five patients who presented having injected foreign materials into the subcutaneous tissues of their penises, including paraffin and mineral oils. These patients had a variable time course of presentation ranging from 1 day following injection to over 26 years. Self-injection of the subcutaneous tissues of the penis is an unusual presentation for a penile mass and swelling but should be considered as a differential diagnosis in patients with a long latent period to presentation or with characteristic magnetic resonance imaging and histological appearances.

### KEYWORDS

Silicones – Andrology – Self-Injurious Behaviour – Disease – Penis

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Soft tissue injection of exogenous substances such as paraffin, mineral oils and silicone have been used for many years to improve body shape and contour by laypeople as well as medical practitioners.<sup>1</sup> The availability, low cost, immediate cosmetic effect and relatively painless application of these substances have meant that they have been seen as materials of choice for individuals looking to undergo cosmetic augmentation.<sup>2</sup> The injection of paraffin into the breast parenchyma was once commonplace, both in women and male-to-female transsexuals.<sup>2,5</sup> This was particularly popular in the 1950s and 1960s, and is still popular in parts of Asia today.<sup>2,4</sup>

We present a series of five men who injected foreign substances into the penis for the purposes of penile augmentation. They had widely differing latency periods prior to presentation and presented in a variety of ways.

### Case 1

A 28-year-old man presented to the emergency department with an overnight history of urinary retention and abdominal discomfort after ‘applying a cream’ to his penis. Physical examination revealed a grossly swollen, tender and erythematous penis and scrotum without involvement of the testicles. The penile oedema resulted in a phimosis. A small puncture site was visible at the base of the penis and on closer questioning, the patient admitted to having injected baby oil into the penoscrotal subcutaneous tissue.

Magnetic resonance imaging (MRI) revealed that the injected material extended from the level of the glans penis to the base of the penis and measured approximately 1.2cm in depth (Fig 1). The corpora cavernosa and corpus spongiosum were spared.

A course of intravenous hydrocortisone and antibiotics was started to limit the acutely developing cellulitis and lymphoedema. The patient was kept under observation for a few days and although the erythema and lymphoedema began to settle, several areas of skin necrosis developed on the penile shaft.

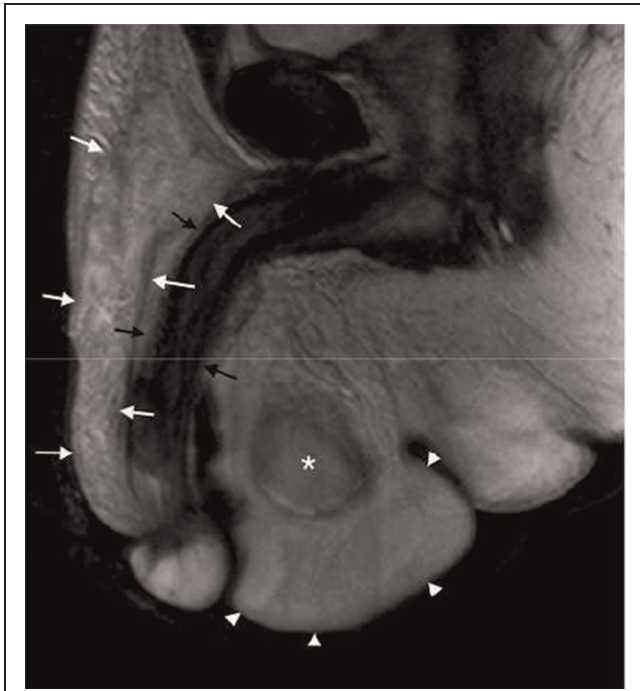
Nine days after the initial admission, the penile abscesses were drained of both pus and the injected material. The multiple lesions on the penile shaft were debrided of necrotic skin and dartos. This was sent for histopathological analysis. Povidone-iodine soaked ribbon gauze was placed in the wound cavity. A cystoscopy showed no evidence of pathology within the urethra or bladder.

### Case 2

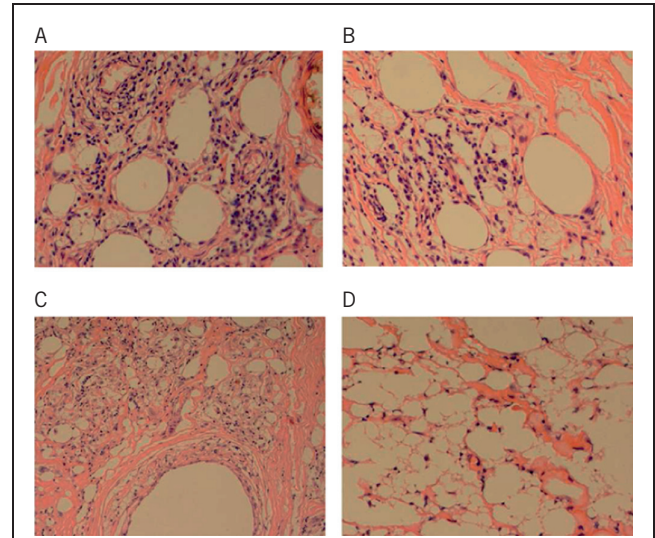
A 61-year-old man being investigated for symptoms of dysuria and haematuria by his general practitioner was referred for the incidental finding of large, firm nodular masses in the penis and scrotum. The patient readily proffered the information that he had injected baby oil subcutaneously into the penis four years previously with the intention of increasing its girth. However, this resulted in a penile deformity and he found it difficult to engage in sexual intercourse.

The patient also suffered from erectile dysfunction pre-dating the injections and was administering intracavernosal alprostadil. He also suffered from hypertension and hypothyroidism.

On examination, the foreskin was grossly oedematous and only partially retractile. Fibrotic masses were found circumferentially along the entire length of the penis including



**Figure 1** Case 1: T2 weighted spin echo sagittal magnetic resonance imaging. The oil is high signal and can be difficult to distinguish it from subcutaneous fat. However, note how the dorsum of the penis is asymmetrically thickened by high signal material lacking the normal lobulations of fat (white arrows). Black arrows mark the low signal tunica albuginea of the corpora cavernosa. There is associated marked scrotal lymphoedema (white arrowheads) around a normal testis (asterisk).



**Figure 2** Haematoxylin and eosin staining of excised tissue. A and B: Case 2 – Areas of fibrosis and chronic inflammation surrounding the vacuoles that remain after processing of the histopathological specimen has leached out the injected foreign material (400x magnification); C: Case 3 – Some cases show more florid inflammation with granuloma formation and few vacuoles (200x magnification); D: Case 4 – Some cases show predominance of vacuoles with little intervening chronic inflammation (400x magnification)

two areas where the penile skin was immobile and adherent to the penile shaft.

A circumcision was performed with subcutaneous excision of the fibrotic penile masses. The tissue was sent for histopathological assessment (Figs 2A and 2B). Cystoscopy revealed no bladder or urethral abnormalities.

On review, residual nodules were found to be present along the distal penile shaft. A full-thickness skin graft from the remaining inner prepuce was used both ventrally and dorsally to cover the defects created by further excision of these masses. However, the patient was unhappy with the cosmetic appearance of the penis with excess skin and some residual fibrosis present proximally on the penile shaft. A further procedure was performed to excise the remaining fibrosis.

**Case 3**

A 35-year-old man was referred to our unit complaining of pain after intercourse lasting a few days. Examination revealed a number of indurated nodular masses along the shaft of the penis, which the patient claimed would become inflamed from time to time, causing pain on intercourse. He

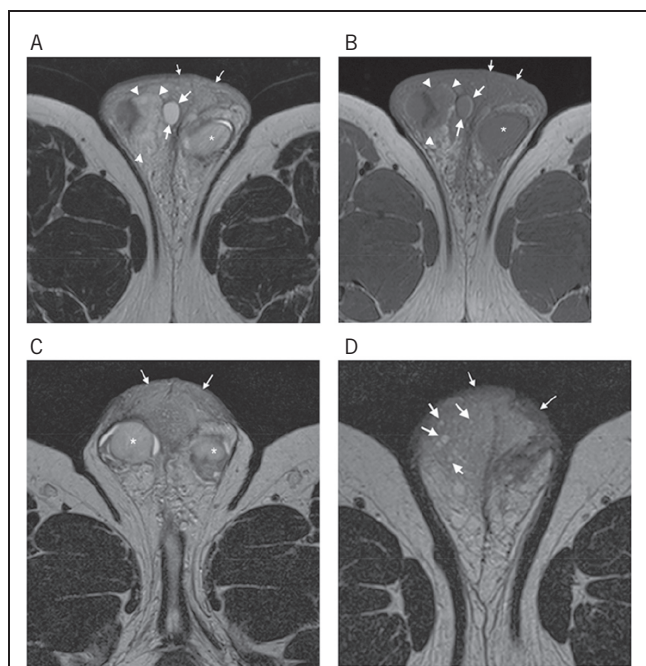
admitted that he had injected silicone into the shaft of his penis a number of years previously to increase its girth. MRI showed a large collection of silicone extending from the dorsum of the penis to the suprapubic region. The patient had no difficulty voiding or any other lower urinary tract symptoms.

A suprapubic incision was used to facilitate the removal of the large silicon deposit and associated fibrous tissue. A longitudinal ventral incision was made on the penis and two nodules at the penoscrotal junction were excised that were partially adherent to the urethra. These were sent for histopathological assessment (Fig 2C). Residual silicone nodules in the penis were excised at a second procedure and the patient was satisfied with the final cosmetic result.

**Case 4**

A 41-year-old man presented to our outpatient clinic unhappy with the appearance of his genitalia but was otherwise asymptomatic. He admitted with some reluctance that he had injected silicone subcutaneously into the penis and scrotum to improve its appearance.

The patient was a type 1 diabetic on insulin, having a history of erectile dysfunction and genital dysmorphism. He had already undergone a previous circumcision to remove a lymphoedematous prepuce. Both the penis and scrotum exhibited marked lymphoedema with a number of indurated nodules of varying size palpable in the right hemiscrotum, and clearly seen on MRI (Figs 3A and 3B).



**Figure 3** Case 4: T1 (A) and T2 (B) weighted spin echo axial magnetic resonance imaging at presentation, and T2 sequences at three months after presentation (C and D). Nodules of silicone are seen (large arrows), as are less well defined foci (arrowheads). Note that on the T2 sequences (and on short tau inversion recovery sequences [not pictured]), both the oedematous surrounding fat and the silicone, as well as the testes (asterisks), are of high signal, the silicone being most intense. On the T1 sequence, all of these components are of intermediate signal. However, a chemical shift artefact (seen best around the nodule indicated by the large arrows) is produced by the different resonant frequencies of the silicone and oedematous fat, resulting in an artefactually bright left border and dark right border to the silicone. At three months, most of the large lobules of silicone have been removed or have diffused but several small nodules are still visible (large arrows). Reactive oedema, thickening and induration (small arrows) remain in the scrotal skin.

The silicone deposits in the right hemiscrotum as well as a paratesticular mass were removed. The tunica vaginalis remained intact and the testicle was viable. The excised tissue was sent for histopathological assessment (Fig 2D).

The patient was unhappy with the cosmetic appearance of the genitalia, and therefore underwent further corrective procedures to the penis and scrotum, during which all of the remaining palpable nodules of silicone were removed. Follow-up MRI revealed much smaller, scattered remaining foci in the scrotum and ventral shaft of the penis (Figs 3C and 3D).

### Case 5

A 47-year-old former soldier was referred to our outpatient clinic readily proffering the information that 26 years

previously, he had injected mechanical oil into the subcutaneous tissues of his penis with the intention of increasing its girth. During this period, he had been largely asymptomatic. When questioned about the reason for the long period between injection and presentation, he said that embarrassment was the main issue and that he thought it was just as easy to reverse. He reported no change in the frequency and quality of erections but that the penile deformity made penetrative intercourse very difficult. The patient had undergone a previous partial excision of the foreign material a but without significant reduction in penile girth.

On examination, the penis was diffusely oedematous along the length of the shaft. A number of indurated masses adherent to the overlying skin were palpable along the ventral penile shaft, in particular at the penoscrotal junction (Fig 4). There was no involvement of the glans penis or the corpora cavernosa. The patient was offered an elective excision and full-thickness skin graft but decided subsequently to not undergo surgical excision and reconstruction.

### Discussion

The first report of genital injection of mineral oils dates back to 1899 by Gersuny, where he described the use of paraffin injection into the scrotum as a cosmetic procedure in a boy who had undergone bilateral orchidectomy for genital tuberculosis.<sup>5</sup> In the same paper, Gersuny described the use of paraffin to cosmetically correct other defects in the body. Since then, further cases of paraffin injection into the penis (principally in an attempt to increase penile girth) have been reported although the few major series from parts of Asia and Eastern Europe indicate a relatively higher prevalence of this practice in those regions.<sup>6–8</sup> The term ‘grease gun injury’ refers to an injury sustained by the use of such a tool to inject substances such as automobile fluids into the penis at high pressure, again for the purposes of penile augmentation.<sup>9,10</sup>

The side effects of such practices were recognised early on in their use, as far back as 1906, and this has meant that the use of mineral oils is no longer used among medical professionals.<sup>11</sup> Such injections are often related to a high level of dissatisfaction with the long term cosmetic appearance.<sup>8,12</sup> The majority of cases are a result of self injection and there can be a variable latency period between injection, onset of symptoms and presentation to a relevant medical service. These cases have variable symptoms and physical appearances. Consequently, they may rarely (if ever) present to a practising clinician. In addition, patients are often reluctant to admit to self-injection.

On examination, the penis is often swollen and erythematous. Penile deformity may or may not be present. In acutely presenting cases (such as the first patient described in this report), the injection site may be visible on close examination. Palpation along the penile shaft can help reveal indurated areas located underneath the skin. These lesions may be mobile with the skin or if deeper, they may be fixed owing to fibrosis. Histopathological examination of the excised tissue can confirm the presence of injected foreign material with an adjacent inflammatory reaction (Fig 2), and can



**Figure 4** Case 5: Photograph indicating the large volume of material that had been injected into the penis circumferentially and extending down into the scrotum.

exclude malignancy, as has been reported in cases of paraffinomas of the scalp and penis.<sup>15,14</sup>

MRI can delineate a deeper, non-palpable extension. It can also exclude involvement of the corpora cavernosa and corpus spongiosum as well as of the testes and epididymis. Silicone is generally low signal on T1 sequences, and high signal on T2 and short tau inversion recovery (STIR) sequences. More specialised techniques such as a silicone suppressed STIR sequence can be useful to distinguish between silicone droplets and other high signal structures like cysts or testes.<sup>15</sup> MRI is usually superior to ultrasonography because silicone is often very echogenic, thus obscuring deeper views,<sup>16</sup> but scanning from a different aspect can sometimes help to reveal normal deep structures. Little has been published on the MRI and ultrasonography appearance of mineral and baby oils.

There may be associated lymphadenopathy, and ultrasound guided fine needle aspiration of clinically suspicious lymph nodes may be used to confirm reactive change secondary to the penile injections.

Patients may develop erectile dysfunction due to extensive penile skin fibrosis and granulomatous changes despite no involvement of the cavernosal bodies.<sup>9</sup> Other complications may include difficulty in penetrative intercourse and necrosis or ulceration of the penile shaft skin.<sup>7,9</sup>

Injection of mineral oils has occasionally been associated with squamous cell carcinomas (SCCs). In one report from Ko *et al*, an 84-year-old man presented with two scalp SCCs.<sup>15</sup> Histopathological assessment of the excised specimens showed the SCCs to be overlying the scalp paraffinoma. However, the patient had a history of alopecia and previous excision of a scalp SCC. In an attempt to treat the alopecia, he had mineral oil injected into the scalp around 50 years before presentation. The inconsistent timescale between initial injection of foreign substances and a symptomatic reaction by the body makes it difficult to determine with any certainty the extent to which the mineral oil may have contributed to the development of the SCC. Ciancio and Coburn reported a case of mineral oil injection into the penis and scrotum 35 years before presentation with an associated SCC without involvement of the penile shaft and glans.<sup>14</sup>

The characteristic pathological reaction seen in tissues exposed to mineral oils is referred to synonymously in the literature as 'oleogranuloma', 'paraffinoma' and 'sclerosing lipogranuloma'.<sup>6,17,18</sup> The term 'Swiss cheese appearance' refers to the presence of large, seemingly empty vacuolar spaces surrounded by dense fibrous tissue. The use of oil specific stains (eg Oil Red O) has shown the presence of encysted oils.<sup>10</sup> There is often a variety of inflammatory cells present, including giant cells, neutrophils, lymphocytes and macrophages.<sup>10</sup> In acute cases, the reaction may not have had sufficient time to form (as with the first patient described in this report). In more established lesions, the histopathological changes such as the presence of vacuolar spaces and adjacent fibrosis/chronic inflammation may vary; with a predilection with one or the other. (Figs 2C and 2D).

## Conclusions

Injection of exogenous non-medical substances such as paraffin or other mineral oils is rare amongst patients. In patients presenting with an unusual case of penile deformity, erectile dysfunction, penile lymphoedema in the presence of palpable masses, the possibility of a reaction to injected foreign material should be considered in the differential diagnosis. A thorough medical history, physical examination combined with imaging and surgical exploration can aid the diagnosis. Our experience and the literature show that despite the low level of satisfaction with the cosmetic appearance following injection, most of these men do not present until there is gross deformity or evidence of infection. Although no standardised treatment protocols exists, it is accepted that removal of the foreign material often combined with skin grafting is required.

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