Complications After Self-Injection of Hyaluronic Acid and Phosphatidylcholine for Aesthetic Purposes

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Abstract
Various types of dermal fillers have been developed for soft tissue augmentation, including hyaluronic acid products, which have been approved by regulatory agencies in Europe, the United States, and elsewhere. Phosphatidylcholine (PPC) injection has attracted attention for its application in the treatment of cellulite, weight loss, and skin rejuvenation. Because the public can now buy PPC and similar products from various online pharmacy websites without the involvement of a clinician, there is potential for misuse. The authors discuss two cases of complications experienced by patients after self-injection of hyaluronic acid and PPC for aesthetic purposes.

Keywords
self-injection, hyaluronic acid, phosphatidylcholine, complication, filler

CASE PRESENTATIONS
The first patient was a 36-year-old woman who experienced swelling after self-injecting HA. She did not have a history of any psychiatric disease. Ten months prior to hospital admission, she purchased an HA product on the Internet, which she self-administered into her nasolabial folds in an attempt to look younger. She obtained information about how to purchase and self-inject HA from various websites and message boards on the Internet. She later reported that in the hours immediately following injection, her entire face began to swell, but she did not seek medical assistance at that time. Several months postinjection, she was still suffering from prolonged swelling and induration around the injection site (Figure 1), and she was admitted to our hospital after referral from a private clinic.

The second patient was a 21-year-old female university student, also without a history of any psychiatric disease. Six months before admission, she purchased a PPC product on the Internet and self-injected it into her buttock and thigh in an attempt to remove excess subcutaneous fat. Similar to the first case, she also obtained information about how to purchase and self-inject PPC online. Within a few days postinjection, her entire buttock and thigh area began to swell and redden. She also suffered from panniculitis of the buttock and thigh, followed by dermal necrosis at the injection sites. After receiving treatment for the panniculitis and skin ulcer, she was admitted to our hospital for treatment of the scars and postinflammatory hyperpigmentation (Figure 2a and 2b).
DISCUSSION

A review of the literature on self-injection of dermal fillers was conducted through PubMed and with Japanese search software (Ichushi, Ver. 4). We found that several researchers have previously reported similar cases of individuals self-injecting various substances in an attempt to improve their appearance. In 2004, the case of a 45-year-old woman with a history of depression who self-injected bovine fat in liquid form into her face was reported. She claimed influence from a television program. Other materials reported as having been self-injected include olive oil,4 automobile transmission fluid,5 mineral oil,6 sweet almond oil,7 sesame seed oil,8 and vegetable oil.9 In addition, there have been some reports of fat embolus caused by self-injection.7,9 In the Japanese literature, four case reports (a total of 10 cases) of self-injection of Vaseline and/or silicone into the penis have been published. In addition, there has been one report of a man who attempted breast augmentation via self-injected vegetable oil.

Most patients discussed in previous case reports have had a history of psychosexual problems and have engaged in frequent, repeated self-injections. It is extremely unusual for an individual without any history of psychological illness to self-inject for rejuvenation purposes. To our knowledge, this is the first report in the literature of self-injection of aesthetic products.

Information About Self-Injection on the Internet

Through the Google Internet search engine, we conducted a general search with the terms hyaluronic acid self-injection, which resulted in nearly 60,000 hits. Similarly, a search for mesotherapy self-injection resulted in over 10,000 hits and lipolysis self-injection had over 7500 hits. The public can easily obtain HA and PPC products, as well as injection syringes and needles, from a number of Internet sites. Some of these sites suggest repeating self-injection every week—sometimes every day. Various websites and message boards also contain instructions for self-injection. The information from these sites and the patients’ descriptions of self-injection are summarized below.

Most individuals appear to self-inject these materials without anesthesia, after the product is cooled with a refrigerant. Some of them apply a topical anesthetic purchased on the Internet; some apply an external hemorrhoid ointment for anesthesia; others use the same needle repeatedly and keep surplus materials in the refrigerator for two to three months (and sometimes more). According to these patients, they can inject the materials just as well as a physician, at a reduced cost. They are fearful about government restrictions on purchasing these products.

Injection intervals range from nearly every day to two and three times per year for HA and every two to three months for PPC. The HA product Hyalos (Maruho, Japan) (at a cost of about 6000 Japanese yen, or about $65) is often purchased for the first trial of self-injections. The popular HA products commonly found in aesthetic clinics can be bought for about 30,000 Japanese yen. It is possible to buy Lipostabil (Sanofi-Aventis, Bridgewater, New Jersey), a PPC-based product for lipolysis injection, for 2000 to 3000 Japanese yen per ampoule. All of these products can be easily purchased online through personal import agencies and individual clinics.

Many sites and individuals claim that self-injection of these materials is safe because HA and PPC exist naturally
Each of these other materials can also be bought on the Internet. Others websites advise drinking a Chinese “diet tea” in addition to performing self-injections.

Individuals on these sites report suffering from complications such as hematoma formation, induration, transformation, recurrent edema, keloids, and infections. When complications are experienced, patients typically consult a physician and claim that they received injection therapy at a beauty clinic. Overall, the information about self-injection available online is of significant concern, in that it tends to exclude information about the risks inherent in self-injection.

**Legality**

According to the website of the Japanese Ministry of Health, Labor, and Welfare (and information provided on the telephone by the person in charge of the pharmaceutical department), medicines, cosmetics, and medical equipment are restricted by legislation concerning quality, effectiveness, and safety. Therefore, only products that are certified based on scientific data can be marketed domestically. Individuals can import these products only for personal use and if they sell or transfer these products to other people, it becomes illegal. It is also illegal to import medicines that pose a serious health hazard if they are administered without a physician’s supervision or without a prescription. However, in recent years, brokers who undertake these purchases in the name of a personal import agency are rampant, leading to sales to a third person without a doctor’s prescription.

To improve the situation with respect to the importation of these products by some individuals and brokers through a loophole in the law, the aesthetic surgery community in Japan is making an effort to warn and provide accurate information to the public about this problem. Television broadcasters (both public and commercial), three newspaper companies, and several major websites ran headlines about this issue in January 2009. Information about the dangers of self-injection was also posted on the website of the Japan Society of Aesthetic Plastic Surgery (JSAPS). Furthermore, we are continuing negotiations with the government to gain insights into the prevalence of self-injection, reporting systems, and watchdog activities.

**Complications After HA and PPC Injection**

It is widely asserted that injection of HA gels into the dermis is generally well tolerated, with a few mild and transient side effects. However, complications do occur. The most common adverse reactions are self-limited and include bruising, erythema, edema, and slight discomfort at the treatment sites. Most of these reactions resolve within one to three days. On the other hand, severe delayed cases of complications, such as systemic hypersensitivity and skin necrosis, have also been reported. PPC injections can result in hematomas, panniculitis, and infection.
CONCLUSIONS

The general public can now purchase injectable aesthetic products, as well as injection syringes and needles for medical treatment, over the Internet without a doctor’s prescription. Particularly in Japan, businesses and individual clinics are selling these products illegally. Many instructional websites and message boards concerning self-injection can be easily found, and wrong and dangerous information (with the message that “self-injection is cheap, simple, and safe”) is being widely disseminated. With this in mind, the number of cases of complications, including blindness caused by retrobulbar hemorrhage and facial nerve palsy and, in the case of PPC (a soy derivative), anaphylactic shock. Obviously, in self-injection cases, these complications could occur at any time. It is essential that the public be provided with accurate information about these complications.

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