

#### Case 4

A 47 year-old Thai female from Saraburi

**Chief complaint:** Facial edema for 3 months



#### Present illness:

The patient had progressive and persistent painless facial edema for 3 months. She was diagnosed with angioedema as well as infection by her primary care physician. After multiple courses of oral antibiotics and antihistamines, her face was not improved. She had no fever or other systemic symptoms.

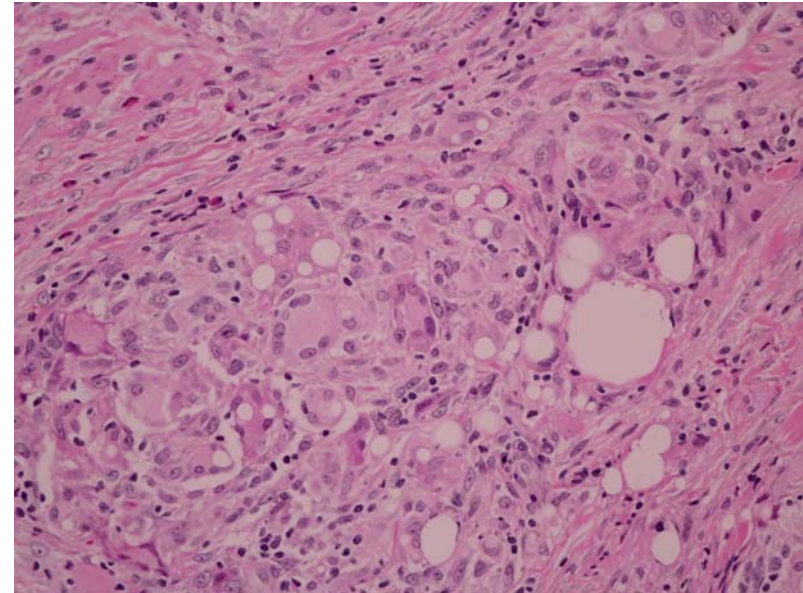
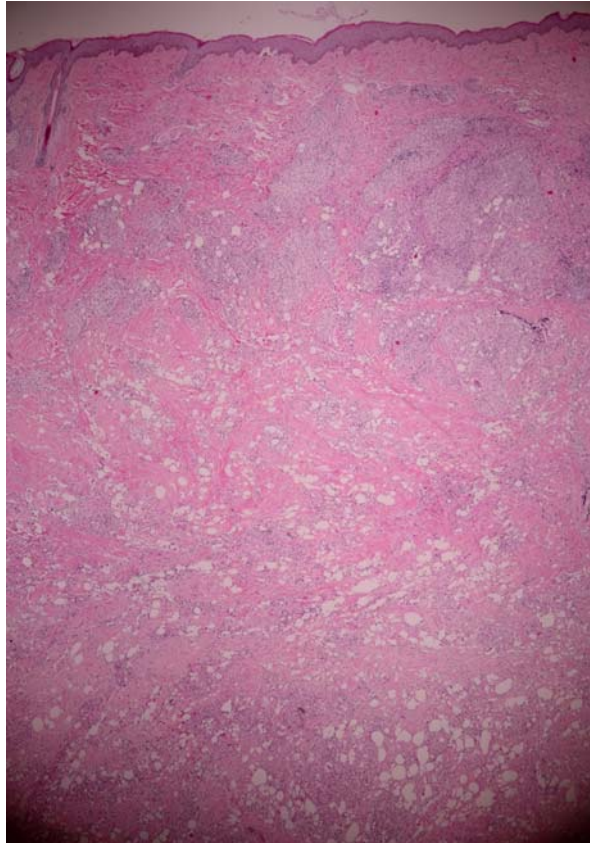
#### Past history:

- Breast cancer (right side) since 2013 treated with modified radical mastectomy and chemotherapy now in remission. Currently on tamoxifen.
- History of injecting liquid substances for facial augmentation on her forehead and chin 20 years ago.
- No facial trauma, but she has frequent facial massages.

#### Dermatological examination:

- Facial edema with multiple ill-defined erythematous dermal/subcutaneous nodules and plaques on the entire face.
- The other systems were unremarkable.

**Histopathology:** (S16-18045A, face)



- Numerous uniform empty vacuoles and cystic spaces intermingled with nodular and diffuse inflammatory-cell infiltrate throughout the reticular dermis.
- Inflammatory-cell infiltration composed of epithelioid histiocytes, and multinucleated giant cells admixed with some lymphocytes and a few of eosinophils, some of those giving the features of epithelioid and tuberculoid granuloma.
- All special stains failed to demonstrate the infectious organisms.

**Investigation:**

- Tissue gram stain, GMS, mAFB, AFB: no organism found
- Tissue culture for aerobe, TB, fungus: no growth
- Tissue PCR for TB, 16s, 18s RNA: negative

**Diagnosis:** Siliconoma

**Treatment:**

- Prednisolone 30 mg/day
- IV Amoxicillin-clavulanic acid and Ciprofloxacin for 2 weeks and de-escalated to oral doxycycline 200 mg/day

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**Discussion:**

Silicone represents a family of synthetic polymers sharing a silicon-oxygen chain with varying organic side groups. Silicone was long thought of as a biologically inert substance and was therefore incorporated into a myriad of medical products and devices including artificial heart valves, joint implants, ventriculo-peritoneal shunts, intraocular lenses and more<sup>1</sup> as well as soft tissue injection for cosmetic purposes<sup>2</sup> which was initiated during 1960s to 1970s.<sup>3</sup> After initiation of using liquid silicone injection for augmentation, There began to report of siliconoma in 1965.<sup>4</sup>

Siliconoma is one of the late complications consequently to silicone injection. Additionally, the adverse reaction of filler can be generally divided into early and late complication. In early complication, it can cause vascular compromise and infection which occur after days to weeks from injection. But the late complication may occur within weeks to years that leads to chronic/indolent infection, granuloma, autoimmune disorders (scleroderma-like),<sup>5</sup> or even malignancy induction also been reported.<sup>6, 7</sup>

There is two clinical manifestation of siliconoma; the most common one is localized type which is confined within the injection site<sup>3</sup> and the other one is locally diffuse type which can cause others systemic symptoms e.g. pneumonitis, granulomatous hepatitis and silicone embolism syndrome.<sup>8, 9</sup>

The onset of siliconoma may occur after six months or as long as twenty-eight years after liquid silicone injection.<sup>2</sup> The pathogenesis of granuloma formation is still unclear. It was postulated about the macrophage phagocytosis<sup>10</sup> process from adsorbed proteins coating on substance surface<sup>11</sup> and then replaced by fibroblasts and collagen fibers. In a rat model, injection of silicone caused an inflammatory response with fibroblasts, macrophages, and lymphocytes around the sites of implantation. In vitro, silicone polymers have been shown to elicit a significant change in the cellular configuration and a progressive reduction in proliferation of dermal fibroblasts.<sup>12</sup>

The histopathology is cystic and macrophagic granuloma type (CMG), characterized by extracellular microcysts which called "Swiss cheese"-like cystic spaces of varying sizes throughout all levels of the dermis compatible with silicone vacuoles, surrounded by a mainly mononuclear infiltrate of vacuolated macrophages that can be distinguished from other foreign body granulomas.<sup>13, 14</sup>

There was no standard treatment for siliconoma. As the reported case, the treatment option ranged from medication to surgical excision of foreign body. For medication, the local treatment such as intralesional/ topical corticosteroids,<sup>15</sup> imiquimod cream<sup>16</sup> has been used as well as systemic medication; prednisolone,<sup>17</sup> isotretinoin,<sup>18</sup> doxycycline,<sup>18</sup> minocycline,<sup>13-17</sup> allopurinol,<sup>19</sup> etanercept<sup>20</sup> were also been reported with successful treatment. However relapsing course of disease may occur during long term follow-up, so surgical resection of foreign body is the final treatment<sup>21</sup> which is effective in localized nodular lesions.<sup>22</sup>

In this case, the patient got recovery within one month after she received IV dexamethasone, amoxicillin-clavulanic acid and ciprofloxacin for 2 weeks and switched to oral prednisolone 30 mg/day, then de-escalated to oral doxycycline 200 mg/day, but partial relapsing occurred soon after that. Doxycycline was continued with short course of oral prednisolone in period of severe facial edema and facial imaging was done in case of surgical excision will be needed. However long term follow-up should be performed.

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