First Annual Meeting of

ICLAD

Indonesian Conference of Laser - Aesthetic - Dermatosurgery

INNOVATION IN DAILY PRACTICE WITH THE POWER OF BASIC SCIENCE IN DERMATOLOGY

PRIME PLAZA HOTEL SANUR, DENPASAR

APRIL 26-28, 2019

PROCEEDING BOOK

First Annual Meeting of
ICLAD
Indonesian Conference of Laser - Aesthetic - Dermatosurgery

Innovation in Daily Practice with the Power of Basic Science in Dermatology

Denpasar
April 26-28, 2019

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Assalamualaikum Wr Wb
Om Swastyastu
Namo Buddhaya
Salam sejahtera untuk kita semua

Puji dan syukur ke hadirat Tuhan Yang Maha Esa atas terselenggaranya symposium dan workshop "*Indonesian Conference on Laser and Aesthetic Dermatosurgery*" (ICLAD) pada tanggal 26-28 April 2019. Kegiatan ilmiah dengan tema "*Innovation in Daily Practice with the Power of Basic Science in Dermatology*" ini diselenggarakan oleh Kelompok Studi Dermatologi Laser Indonesia (KSDLI) dan kelompok Studi Tumor dan Bedah Kulit Indonesia (KSTBKI) bersama PERDOSKI cabang Denpasar. Melalui seminar ini diharapkan para partisipan dapat meningkatkan pengetahuan dan keterampilan dalam bidang dermatologi Laser dan Tumor Bedah Kulit pada praktik sehari-hari berdasarkan keilmuan dasar/ *Basic science.*

Acara ilmiah ini akan diisi dengan kehadiran para pembicara dari luar maupun dalam negeri yang akan memberikan penyegaran pengetahuan dan keterampilan dalam bidang dermatologi Laser dan Tumor Bedah Kulit dimana PERDOSKI Denpasar mendapat suatu kehormatan sebagai penyelenggara.

Akhir kata, saya mengucapkan suksema/ terima kasih atas kerja keras seluruh panitia dalam mempersiapkan acara besar ini, juga kepada seluruh mitra kerja, karena dengan dukungannya dapat dihasilkan kegiatan yang sempurna, dan tidak lupa juga kami mengucapkan selamat datang di Bali kepada peserta seminar yang telah berpartisipasi mengikuti acara ilmiah ini, dan selamat menikmati keindahan alam, budaya dan kulinernya.

Om Shanti Shanti Shanti Om

Prof. Dr. Made Swastika Adiguna, Sp.KK(K), FINSDV, FAADV
Ketua Panitia ICLAD 2019

Speaker's Abstract

Friday, 26 April 2019

From: **iclad 2019** icladdenpasar2019@gmail.com
Subject: Undangan Partisipasi ICLAD 2019 (revisi)
Date: 7 February 2019 13.05
To: agoharlim@yahoo.com
Cc: ilmiahiclad2019@gmail.com

Kepada Yth,
DR. Dr. Ago Harlim, MARS, Sp.KK
Di tempat

Dengan hormat,

Kelompok Studi Dermatologi Laser Indonesia (KSDLI) dan Kelompok Studi Tumor dan Bedah Kulit Indonesia (KSTBKI) bersama PERDOSKI Cabang Denpasar bermaksud menyelenggarakan *Symposium & Workshop* ***"Indonesian Conference on Laser and Aesthetic Dermatosurgery"*** **(ICLAD) 2019** dengan topik ***"Innovation in Daily Practice with The Power of Basic Science Dermatology"*** pada hari Jum'at – Minggu, 26 – 28 April 2019 di Hotel Prime Plaza, Sanur & Rumah Sakit Umum Pemerintah (RSUP) Sanglah, Denpasar, Bali.

Bersama ini kami mengundang DR. Dr. Ago Harlim, MARS, Sp,KK untuk menjadi:

I. Pembicara di *symposium* pada :

Hari/ tanggal	Jam	Durasi	Sesi	Topik
Sabtu/ 27 April 2019	08.45-09.00	15 menit	*Session XIV: Scar and Granuloma*	*Classification of Silicone Foreign Body Reaction: Difficulties and Management*
Sabtu/ 27 April 2019	11.45-12.00	15 menit	*Sesi XVII: Skin Rejuvenation & Body Contouring*	*Body Contouring with New Technology*
Sabtu/ 27 April 2019	15.15-15.30	15 menit	*Session XXI : Collaboration of Dermatologic Laser and Surgery*	*Circumcision: with Surgery or Laser?*

Besar harapan kami, Sejawat bersedia berpartisipasi dalam acara ini. Formulir kesediaan dan *curriculum vitae* kami lampirkan dalam surat ini.
Demikian surat permohonan ini kami sampaikan. Atas perhatian dan kerjasamanya kami ucapkan terima kasih.

Hormat kami,

Ketua Panitia ICLAD 2019/ Sie Ilmiah ICLAD 2019

DR. Dr. Ago Harlim,...n.docx

First Annual Meeting of

ICLAD

Indonesian Conference of Laser - Aesthetic - Dermatosurgery

Sertifikat

Certificate

Given to

Dr. dr. Ago Harlim, MARS, Sp.KK

For the participation as

SPEAKER

On:

National Symposium

INDONESIAN CONFERENCE OF LASER - AESTHETIC - DERMATOSURGERY

Denpasar - Bali, Indonesia
26 - 27 April 2019

SKP IDI : Participant 10 SKP, Speaker 12 SKP, Moderator 4 SKP, Committee 2 SKP

dr. Tjokorda Dalem Pemayun, Sp.KK
Ketua Perdoski Cabang Denpasar

Prof.dr.Made Swastika Adiguna, Sp.KK(K), FINSDV, FAADV
Ketua Panitia

CLASSIFICATION OF SILICONE FOREIGN BODY REACTION: DIFFICULTIES AND MANAGEMENT

Ago Harlim

Abstract

Background. A foreign-body reaction is a typical tissue response to a biomaterial that has been injected or implanted in human body tissue. There has been a lack of data on the classification of foreign body reaction to silicone injection, which can describe the pattern of body tissue responses to silicone.

Method. We modified the classification proposed by Duranti et al, which has categorized a foreign-body reaction to hyaluronic acid injection into a new classification of a foreign-body reaction to silicone injection. A cohort study of 31 women suffering from silicone-induced granulomas on their chin was conducted. Granulomatous tissue and submental skin were stained with hematoxylin–eosin and evaluated.

Results. Our data revealed that there were at least seven categories of foreign-body reactions to silicone injection could be developed. Categories 1–4 showed inflammatory activity, and categories 5–8 showed tissue repair by fibrosis.

Conclusion. Using histopathological staining, we are able to sequence the steps of body reactions to silicone injection. Initial inflammatory reaction is then replaced by fibrosis process repairing the damaged tissues. The process depends on the host immune tolerance.

Level of Evidence: V, descriptive study

Keywords: Foreign-body reaction, Silicone, Granuloma

Classification of Silicone Foreign Body Reaction: Difficulties and Management

ICLAD , 26-27 Aprill 2019, Bali

Introduction

Silicone injection has been used since 40 years ago and at that time, many problems occurred such as migration, inflammation, and granuloma. In 1992, FDA prohibited silicone injection for cosmetic use.[1] In addition to injection silicone may be introduced into our body or skin through food intake and cosmetic. Silicone has been widely used in daily cosmetics. Nowadays, due to technology advances, topical drugs can pass through skin barrier and can be penetrated into the skin, which has become a great concern as it may induce granuloma formation. There are relatively very few studies have been done on silicone concentration in normal skin.

A study conducted by A Harlim in 2018 found that normal skin contained silicone. The study was performed by taking skin samples from normal subjects and those with face-lift procedure and subsequently compared those samples using the same criteria with the control group, which included skin samples of subjects that had received silicone injection and the study found granuloma formation. The study found an average amount of silicone level of 44.07±75.86 μg/g in patients with normal skin; while in patients with granuloma, they found 38 times greater silicone level (1709.21±1851.72 μg/g).[2]

Silicone

Injectable-grade silicone for medical use has been manufactured widely since the element has been known for its stable and inert characteristics.[5,6] It includes the use of silicone oil, which has been utilized in the treatment of complicated retinal detachment and heavy silicone oil tamponade. The treatment seems to offer promising results, particularly on improving visual acuity as well as great results on some anatomical parameters; however, there are some concerns as it may cause several complications such as cataract, increased ocular pressure, heavy silicon oil emulsification and mild inflammatory reaction.[7-9]

Injectable-grade slicione has also been widely used in the form of silicone oil injection. Some studies have suggested that it may have an essential role in reducing

the risk of developing diabetic foot ulcer due to its pressure-reducing properties; therefore, it can maintain plantar tissue thickness and alleviate symptoms of diabetic foot ulcer, which may be associated with foot biomechanics.[10,13]

Although it brings advantages, silicone injection may still develop some complications, either local or systemic complications. Local complications may include formation of palpable nodule surrounding injection site, arthralgia, fatigue, electrical neuropathy and electrical sensation;[14] while systemic complications may also occur in the form of lymphadenopathy, renal disease and hepatic disease. It indicates that the injected silicone can migrate from injection site to other organ causing local and systemic complications. An animal experimental study in mice model may explain the pathogenesis of such complications. The study has demonstrated that macrophage of skin tissue may engulf the injected silicone and the silicone may be distributed through lymphatic circulation and ultimately causing accumulation in lymph nodes, adrenal glands, kidney, liver and spleen as well as granuloma formation in the skin.[15] Complications due to silicone injection, particularly the granuloma formation may be dose-dependent. A study by A Harlim has demonstrated that granuloma formation could be developed when there is a large amount of silicone exposure as the study only found a low level of silicone without any granuloma formation in normal skin.[2]

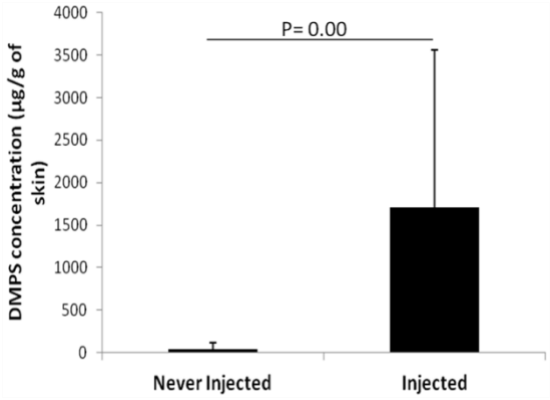


Figure 1. The level of silicon (Si) in normal subjects who had never received silicone injection (never injected) and in subjects with granuloma who had received silicone injection (injected)

Cultural changes have been encouraging people to pursue their passion on beauty and youth; therefore, cosmeticology has been rapidly growing. With technological advances, more mixed drug ingredients have been added to cosmetic products in order to beautify their customers. Thus, it may indirectly increase the use of topical cosmetics that usually contain silicone; therefore, it will lead to increase silicone

uptake to the skin. It has raised a concern that prolonged and continuous use of cosmectics will cause granuloma formation and other chronic inflammatory effects.

Dietary intake and silicon

Aside from medical use, silicon has also been used in food industry, cosmectics and pharmaceutical industries. Our data shows that the silicon levels in gastrointestinal medications (e.g. antacids), mineral water and soda drinks are 44.1, 25.6, 2.91 μg/g, respectively. It can be said that there are many routes for administering silicon into our body. The average daily intake of silicon for European and North American populations is 20-50 mg/day. In China and India, the daily intake of silicon is larger that may reach as many as 140-200 mg/day, in which wheats, fruits and vegetables are the greatest producers.[3]

A research institution of healthy aging and nutrition in U.K. has recently reported a strong correlation between silicon in dietary intake and the health of bone and connective tissue. Therefore, it can be assumed that the correlation is associated with collagen synthesis and/or stabilization of mineral matrix, i.e. silicone intake may affect bone density.[4]

Another study, which is an animal experimental study, has demonstrated that there is no evidence of silicon accumulation in silicon consumption. Silicon can be eliminated through digestion process and can be found feces (93-97%), urine (0.001-0.22%) and expired air (0.01-0.02%).[5] It indicates that silicon is a stable element and at certain degree it can be resistant to digestive enzymes including gastric acid; therefore, it seems that silicon is not accumulated in the gastroinstestinal system.

Silicon in Cosmetics

Beauty products for face, hair, and cosmetics may have high silicon content, in which it will be accumulated in the skin tissue. When a topical beauty product containing silicon is applied to the skin, the elastrometic particles of silicon will absorb various liquids including emollient and oil; therefore, silicon is used in skin care product as vehicle (carrier) of active ingredient for the skin or as oil control product of the skin.[6,7]

Types of silicone that are commonly used in cosmetic products:

- Dimethicone – clear, inert, liquid solubility depends on the length of polymer backbone ranging in thickness from watery consistency to thick.

- Dimethicone Copolyol – silicone that contains an –OH group; therefore it is more water soluble resulting in easier incorporation into water-based formulations and also reduces the "slip effect" of the silicone
- Cyclomethicone – the shortest cyclic molecule, which has many similarities with dimethicone except it can evaporate; while dimethicone can not.
- Cyclo-Dimethicone – a combination of dimethicone dan cyclomethicones.

The great use of silicones in cosmetic product may increase the risk of accumulation of the substance in our body, particularly in facial skin. No clear evidence has been found on the bioavailability and concentration of accumulated silicone in topical uses.

Granuloma: Definition

Granuloma is a foreign body reaction against foreign substances that enter the skin. Granuloma occurs due to continuous or chronic inflammation against foreign substances. Silicone is a foreign substance in the body, which will be encapsulated by the body. Datia cells (giant cells) will encapsulate silicone material and therefore; inflammatory mediators can not perform phagocytosis, which result in continuous inflammation and causes side effect.The encapsulated material has poor vascularization; therefore it may potentially induce infections.[8]

Classification and Etiology

There are many kinds of granuloma classification; however, the common classifications are those which have been adjusted to the etiologies.[9,10] Granuloma formation may occur due to various factors such as biologic, chemical and physical irritative agents.[9] Classification based on clinical, ethiological, histopathological features can be categorized further into infection, vasculitis, immunological aberration, leukocyte oxidation deficiency, hypersensitivity, chemicals or neoplasma.[11,12] Table 2.2 presents classification of granuloma based on etiology.[10]

Table 1 Classification of granulomatous disorders (Cited from: James DG, Wiliams WL).[10]

Infections	Immunological aberrasion
Fungi	Sarcoidosis
Histoplasma	Crohn's disease
Coccidioides	Phimary billiary cirrhoris

Blastomyces
Sporothrix
Aspergillus
Cryptococcus

Protozoa
Interferon-8-receptor deficiency
Toxoplasma
Leishmania

Metazoa
Toxocara
Schistosoma

Sprirochaetes
T.Pailidum
T.carateum
T.pertunue

Mycobacteria
M. tuberculosis
M. leprae
M. kansasil
M. marinum
M. avian
BOG vaccine

Bacteria
Brucella
Yersinia

Other infections
Cat-scratch
Lymphogranuloma

Neoplasia
Carcinoma
Reticulosis
Pinealoma
Dysgerminoma
Seminoma
Reticulum cell sarcoma
Reticulum cell sarcoma
Malignant nasal granuloma

Chemicals
Beryilium
Zirconium
Silica

Glant cell arteritis
Peyronie's disease
Hypogammagiobulinaemia
Langerhans' granulomatosis
Hepatic granulomatous disease
Immune complex disease

Vasculitic granulomatosis
Wegener's
Necrotizing sarcoidal
Churg-Strauss
Lymphomatoid
Polyarteritis nodosa
Bronchocentric
Systemic lupus

Leukocyte cocidase defect
Chonic granulomatous disease of childhood

Hypersensitivity pneumonitis
Farmers' lung
Bird fanciers'
Mushroom workers'
Suberosis (cork dust)
Bagassosis
Marple bark strippers'
Paprika splitters'
Coffee bean
Spatlese lung

Other
Fibrosing alveolitis
Whipple's disease
Pyrexia of unknown origin
Radiotherapy
Cancer chemotherapy
Panniculitis
Chalazion
Sebacous cyst
Dermoid
Sea urchin spine injury
Tattoo
Malakoplakia
Blau's syndrome

Silicone granuloma

Silicone granuloma is a foreign-body granuloma, which is characterized by the presence of multinuclear datia cells and marcrophages surrounded by lymphocytes and infiltrates of neutrophyls. The granulomatous histological lesion caused by silicone varies depending on the type of silicone.

Tissue reactions to silicone gel or liquids is characterized by the formation of silicone granuloma with cystic space containing foreign body.[13] The irregular surface of silicone can not be phagocytosed completely by macrophage. Datia cells are formed due to "frustrated" macrophages. Microspheres in the size of less than 15 microns will be phagocytosed and transferred to lymph node; while those with big size and non-absorbable polymer will be encapsulated by fibrotic tissue.[14]

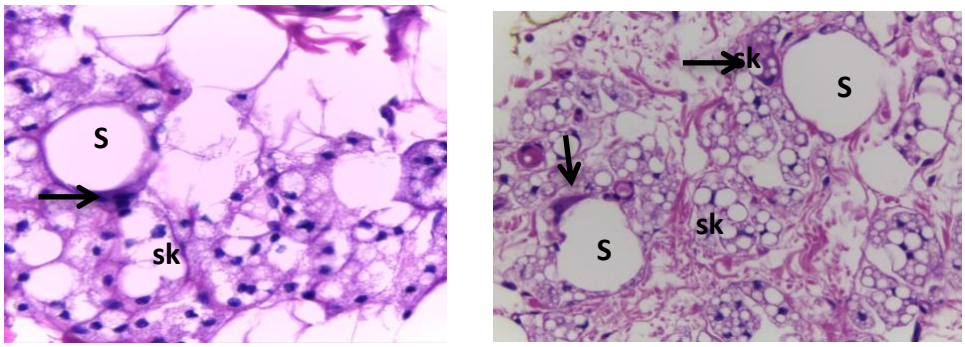


Figure 2. Results of histopathological examination (HE 400x magnification) in one of study subject. There is a datia cell (arrow), which is phagocytosing silicone (S) and is trying to destruct it into smaller pieces (sk).[1]

Datia cell is essential in tissue response to silicone as seen in figure 2, in which the datia cell is phagocytosing the silicone. It appears that although the datia cell can not eliminate the silicone, but it would produce fragmented silicone into smaller pieces. Within a month, the silicone will be in the size of 20-100 microns.[15] However, it still can not be completely phagocytosed and ultimately it will be encapsulated by fibrotic tissue.

In general, silicone granuloma can be categorized into 3 phases according to the natural history of our immune response, which are mild inflammatory phase, i.e. stage 1; inflammation with datia cells, i.e. stage 2, 3, 4, 5 and tolerance phase with fibrosis, i.e. stage 6 and 7.

According to A Harlim in 2018, histopathological features of silicone granuloma can be categorized into 7 stages, which are:[15]

Stadium 1, Moderate reaction with a few inflammatory cells

Stadium 2, Inflammatory cells with one or two datia cell(s)

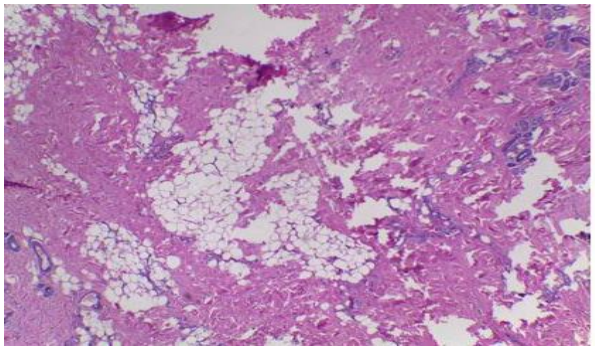
Stadium 3, Inflammatory cells with more than two datia cells and < 50% fibrotic area

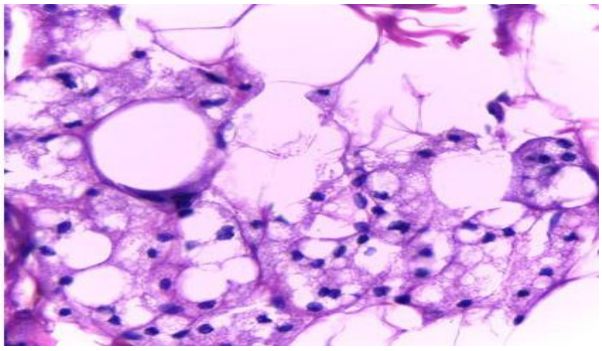
Stadium 4, Inflammatory cells with more than two datia cells and > 50% fibrotic area

Stadium 5, Inflammatory cells with one datia cell and > 50% fibrotic area

Stadium 6, < 50% fibrotic area with no datia cell

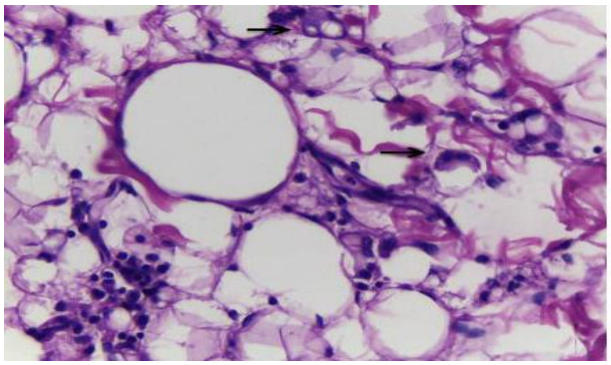
Stadium 7, > 50% fibrotic area with no datia cell

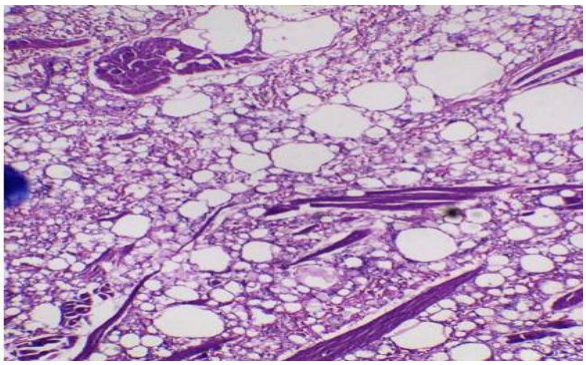




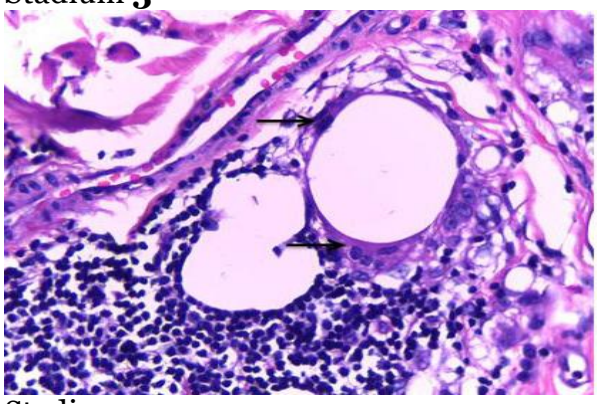
Stadium **1**

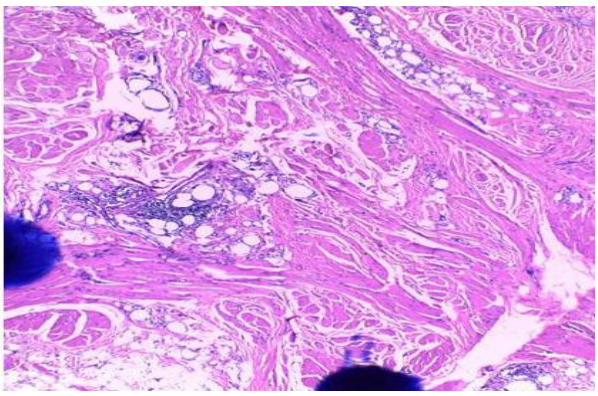
Stadium **2**



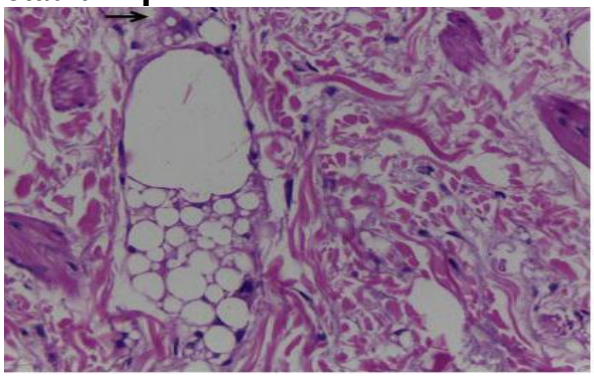


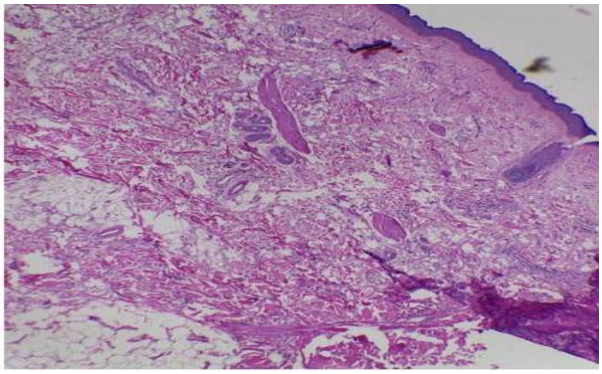
Stadium **3**



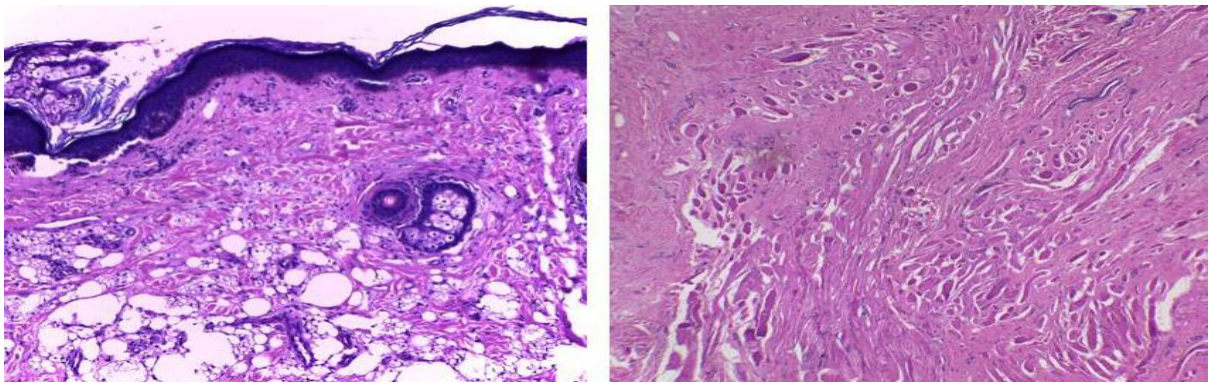


Stadium **4**





Stadium 5



Stadium **6** Stadium **7**

Figure 3. Stadium 1, Moderate reaction with a few inflammatory cells. Stadium 2, Inflammatory cells with one or two datia cell(s). Stadium 3, Inflammatory cells with more than two datia cells and < 50% fibrotic area. Stadium 4, Inflammatory cells with more than two datia cells and > 50% fibrotic area. Stadium 5, Inflammatory cells with one datia cell and > 50% fibrotic area. Stadium 6, < 50% fibrotic area with no datia cell. Stadium 7, > 50% fibrotic area with no datia cell.

Diagnosis

Granuloma is a form of localized nodular inflammation, which is found in tissues.[9] On examination, there is a tumor-like mass or node of granulation tissue with active fibroblast growth and capillaries that contain epithelial-like macrophages surrounded by mononuclear cells, lymphocytes, and sometime multinucleated datia cells present at the central core of granuloma.[16]

On clinical point of view, silicone granuloma is characterized by the presence of complications of silicone. There are usually granuloma nodes, migrating silicone, wider nose and signs of inflammation such as redness and swelling depending on the stage.

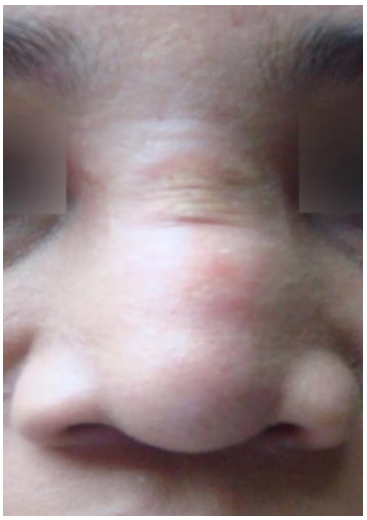


Figure 4. Granuloma due to nasal silicone injection. On the photograph, there is granuloma node, migrating silicone, the nose becomes wider and signs of inflammation such as edema and redness.

Management

The management of silicone-induced granuloma is often difficult due to migrating silicone and some of the silicone penetrates into the skin reaching epidermis. In general, the management of granuloma can be categorized into 2, i.e. surgical and pharmacological treatment. The management of nasal silicone granuloma is adjusted for the occurring complications. We must remove granuloma, which is under the skin; afterwards, we perform excision of excessive skin or implant insertion creating firmer skin and cosmetically more attractive. Remaining fibrosis or granuloma can be treated using steroid injection and laser therapy is performed for redness.

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