IMPLANT RUPTURE AND ANTE-GRADE EXCISION OF AXILLARY SILICONOMA THROUGH IMPLANT POCKET. A CASE REPORT AND LITERATURE SEARCH.

Mr. Umar Daraz Khan*

ABSTRACT:

Implant rupture is not uncommon and reported incidence varies from 0.3% to 77%. Rupture of a cohesive gel silicone implant may not be clinically noticeable and finding can be incidental. On the other hand silicone migration to axilla is uncommon and patients presenting with axillary lumps may present a diagnostic problem and breast screening for breast malignancy is mandatory and must be a part of the investigation. A case report of axillary siliconoma associated with raised antithyroid antibodies and cervical lymph adenopathy is presented. Patient had her siliconoma removed through implant pocket in an ante grade fashion to avoid surgical morbidity associated with direct axillary excision.

Introduction:

Implant rupture is a commonly known complication of breast augmentation and have been reported in saline as well as silicone implants. The implant rupture in saline implants is clinically obvious due to the loss of its contents, on the other hand, rupture of silicone gel implant is not accompanied with the loss of volume and can be difficult to pick.[1] Lymphadenitis[2], autoinflation of breast[2,3] and silicone granulomas[4] may present as early markers of a ruptured implant but the signs are not consistent and a rupture of an implants can be silent.[1] These localised or generalised symptoms depend on the amount and extent of leaked silicone. Intracapsular leak does not always generate local or general symptoms due to the biocompatibility of the medically graded silicone and these ruptures are often found incidentally. Extra capsular leak, on the other hand, often has a higher risk of loco-regional complications.[2-4]

Leaked silicone or gel bleed of an implant is handled and treated by the reticuloendothelial system in the same way as it deals with the silicone, which our bodies are exposed to, in our daily routine life.[5,6] Antibodies to ventriculoendothelial shunts[7] and circulating antibodies immunoglobulin G (IgG)[8] to silicone, has been reported but further studies did no confirm and challenged the results.[9,10] Similarly bilateral areolar depigmentation has been reported with out any support of anti-melanin antibodies.[6]

Axillary lymphadenitis has been reported[2,4] in the past but raised antithyroid antibodies and silicone granulomas, with a history of cervical lymphadenopathy, hyper-reflexia of muscle and left shoulder effusion secondary to implant rupture in a patient is presented as a case report.

Keywords: Implant rupture, Siliconoma, Muscle splitting augmentation, Lymphadenopathy, Autoimmune disorders, Silicone leak.

CASE REPORT:

A 44-year physiotherapist had an augmentation mammoplasty surgery in April 2005 by another surgeon and implants were placed in subglandular plane using inframammary crease. Poly Implant Prothese high profile implants (right 365 cc, lot/serial number 14602-054, left 365cc lot/serial number 15602-014). Surgery was performed under general anaesthetic and drains were inserted. She had a good postoperative recovery and was discharged next morning.

Patient had surgery for endometriosis in 2008 and found to have raised antithyroid antibodies and was referred back to her family physician. She also developed left shoulder effusion and needed shoulder joint aspiration and physiotherapy to shoulder and spine. She was subsequently referred to an endocrinologist for hyper-reflexia, generalised muscle ache and left cervical lymphadenopathy with three times normal anti-thyroid antibodies. She was referred to an endocrinologist, who arranged a scan of her neck, left shoulder, axilla and breast. Ultrasound showed extra capsular leak on the left side with siliconoma and intracapsular leak of silicone on the right side. Due to the complexity of the presentation and radiological finding, patient was referred to a breast oncologist who reviewed the reports, examined the physical findings and asked the patient to see a plastic surgeon for the management of ruptured implant and siliconoma of left breast and chest/axillary wall.

In early 2009, patient was seen and examined by the author. Her breasts measured 32 EE/F and left breast was little higher on the chest wall secondary to grade II/ IIIcapsular contracture. She had a large palpable lump on lateral fold of left breast that was extending into the axilla and had palpable lymph nodes in the left axilla. She had full bilateral normal shoulder movements with no cervical lymphadenopathy. A plan of implant replacement was discussed and to avoid scars on her breast

- *Mr. Umar Daraz Khan MBBS, FRCS*
  Re-shape House, High Street. West Malling., Kent ME19 6QR, UK

.=corresponding author: Mr. Umar Daraz Khan*
E.mail; Mrumarkhan@aol.com

and chest wall, patient requested to get her granulomas removed internally. She was informed and warned that it is difficult to remove such an extensive siliconoma from inside and consent for external excision was obtained at the same time. She was also informed that the in transit leaked silicone may appear as granulomas in future. She chose 400cc high profile soft cohesive gel silicone implants to replace her 365cc implants. An implant pocket change from subglandular to muscle splitting biplane was considered. Procedure was planned as a single stage day case procedure.

In April 2009, exploratory surgery was performed under general anaesthetic and with the patient in standing position, preoperative markings for the precise location and orientation of siliconoma was performed. (Fig 1 a-d) The palpable lump was lying obliquely behind the lateral fold of the left breast and was extending posteriorly into the axillary wall.

Intraoperative findings:

Right breast. Implant was macroscopically intact, (Poly Implant Protheses, batch/serial number 14602-054) with no free fluid, capsule was thin and showed no inflammation. Lateral part of the pocket was over dissected and was reduced using multilayer capsuloraphy and pocket changed to muscle splitting pocket with out a drain.

Left breast. Implant had a rupture (Poly Implant Protheses, batch/serial number 15602-014) with lot of thick yellowish fluid (sterile pus). Ruptured prosthesis were explanted, there was an active inflammation of the capsule secondary to the leaked silicone. Lump was palpated internally through the pocket and location confirmed bimanually using the external markings. Internal capsulotomy was performed over the lump and siliconoma was identified and antegrade dissection carried out. Dissection and excision was difficult due to the extraordinary size of the siliconoma, which measured 7x4 cm in size on complete removal. (Fig 2) Excised specimen was sent for histology along with a swab for microbiological assessment, drain was inserted. Both implants were sent to the manufacturer for assessment. Patient was nauseated in her immediate postoperative period and was kept over night. Histology of the lump confirmed siliconoma (fig 3) and was consistent with preoperative radiological finding, microbiological results of the swab showed no growth as reported in previous cases of implant rupture with silicone leak .[2-4]

On her first postoperative appointment, patient had an extensive bruising of the left breast on its lateral aspect that extended onto the left chest and medial axillary wall. (Fig 4) Manufacturer reported differences in envelope thickness on the ruptured side, which could have been the origin of the rupture and was caused by premature envelope wear and tear over time due to rubbing from movement. Right implant was reported to have no defect. Four month follow up showed good outcome of the surgery (fig 5a-d) and patient reported improvement in the generalized muscle ache and pains and reduction in antithyroid antibodies levels.

Discussion:

Rupture of an implant is a known complication and incidence varies from 0.3% to 77%.[11-13] The causes of device failure are many and includes biochemical degradation of silicone, fold flaw failures, mechanical or instrumental injuries during implantation and can be a direct result of mammography or closed capsulotomies. Institute of Medicine of America, has outlined that all silicon gel implants were susceptible to silicon bleed through the implant shell and has defined silicon breast implant rupture as a breach of any size in the implant shell. However the presentation of third generation cohesive gel silicone implant rupture may present differently, that there may not be any loss of volume of the implant or breast. These gel bleeds can be absolutely silent if the gel bleed is intracapsular and can often be missed on routine mammography.[16]

For detection of cohesive gel implant rupture detection, MRI is reported to have more definitive resolution though ultrasonic evaluation can be reasonably effective.[11]

One of the long-term prospective study concluded that 2 and 15% of third generation of implants, that were intact three years after implantation, could be expected to develop definite ruptures by 5 and 10 years, respectively. Size of the sample included 271 patients from three hospitals without mentioning the number of the surgeons involved or the type of implants used by them.[12] One of the established cause of the device failure is the mechanical injuries sustained at the time of insertion,[2-17] including handling of the implant by the surgeon.[3] All ruptured implants in the previously reported cases by author, were sent to the manufacturer for examination and assessment and results showed no manufacturing defect in the shell of the implants. Almost all presented with autoinflation with sterile pus secondary to chemical and inflammatory response to the leaked silicone. The sterile nature of the pus allows the procedure to be performed in a single stage and change of pocket from subglandular to muscle splitting submuscular pocket has been postulated to speed up the healing process.[3] In the current case report, internal excision was requested by the patient to avoid external scarring and was performed successfully. The approach has the added advantage to prevent Mondor disease or thrombophlebitis of thoracoabdominal or axillary veins.[4,18]

Patient had left shoulder effusion decompressed earlier and had raised anti-thyroid antibodies with cervical lymphadenopathy which were managed by her endocrinologist with out any specific treatment. The decision was taken, possibly due to the absence of thyroid function test and difficulty in establishing the clear cause of the raised antibodies and the process was labelled non-specific thyroiditis. The relationship of the silicone and autoimmunity has been extensively studied in the past.[5] The studies have specifically targeted numerous disorders including scleroderma, rheumatoid arthritis, Systemic lupus erythromatosus, Sjogren's syndrome, polymyositis etc. Blood samples taken from large a group with

mammoplasty when compared with a large group of control group with no augmentation, no significant difference was seen between the two groups.[19-22] Our bodies are exposed to silicone, silicone has been included as the trace element and is considered a building block especially to bones, tendons and joints.[23] It is not surprising that silicone is available commercially as a nutritional supplement.[24]

However, in animals, self-proteins absorbed to silicones polymers can induce an antibody response, and silicones may sometime have a modest adjuvant effect on antibody production. However there was no evidence that the response can cause any tissue damage and no such response has been conclusively reported in patients with augmentation mammoplasty.

REFERENCES

1. Spear SL. Breast Implant Technology: What Can We Count On? Aesthetic Surg J 19:347-349.1999
2. Khan UD. Unilateral Breast Autoinflation and Intraprosthetic Collection of Sterile Pus. An Unusual Operative Finding of Silicon Gel Bleed With Silicon Lymphadenitis. Aesth Plast Surg. 2008;32:684-687.
3. Khan UD. Auto-inflation with Sterile Pus as a Marker of Implant Rupture: Single Stage Treatment and Outcome of Five Consecutive Cases. Aesthetic Plast Surg 2009;33:58-65
4. Khan UD. Mondor Disease: A Case Report and Review of the literature. Aesth Surg J 2009;29:209-212.
5. The Independent Review Group, Rogers J, et al: Silicone gel breast implants: The Report of the Independent Review Group.Retrieved at http://www.silicone-review.gov.uk/index.htm. 1998
6. Khan UD. Bilateral Areolar Depigmentation After Augmentation Mammoplasty: A Case Report and Literature Search. Aesth Plast Surg 32:143-146. 2008
7. Goldblum RM, Pyron D, Shenoy M Modulation of IgG binding to silicones by human albumin. FASEB J 9:A1029, (Abstract 5967). 1995
8. Rohrich RJ, Hollier LH, Robinson JB. Determining the safety of the silicone envelope: In search of a silicone antibody. Plast Reconstr Surg 98:455-458.1996
9. Wolf LE, Lappe M, Peterson RD, Ezraison EG. Human immune response to polydimethylsiloxane (silicone): Screening studies in a breast implant population. FASEB J 7:1265–1268. 1993
10. American Council on Science and Health. Silicone breast implants: Why has science been ignored? ACSH, New York. 1996
11. Holmich LB, Jon F, Kjoller K, Breiting VB, Jorgensen A, Krag C, McLaughlin JK. The Diagnosis of Silicon Breast-Implant Rupture: Clinical Findings Compare With Findings as Magnetic Resonance Imaging. Ann Plast Surg 54:583-589.205
12. Holmich LR, Friis S, Fryzek JP, Vejborg IM, Conrad C, Sletting S, Kjoller K, McLaughlin JK, Olsen JH. Incidence of Silicon Breast Implant Rupture. Arch Surg.138:801-06.2003
13. Marotta J, Goldberg EP, Habel MB, Amery DP, Martin PJ, Urbaniak Dj, Widenhouse CW. Silicon Gel Breast Implant Failure: Evaluation of Properties of Shells and Gels for Explanted Prosthesis and Meta-analysis of Literature Rupture Data. Ann Plast Surg 49:227-247. 2002
14. McLaughlin JK, Lipworth L, Murphy DK, Walker PS. The Safety of silicon Gel-Filled Breast Implants: A Review of the Epidemiologic Evidence. Ann Plast Surg 59:569-580. 2007
15. Bomdurant S, Ernster V, Herdman R. Safety of Silicon Breast Implants: Report of the Committee on the safety of Silicon Breast Implants(IOM). Washington, DC: National Academy Press; 1999.
16. Weekman WH, Van Sraalen WR, Hage JJ, Taets van Amerongen AHM, Mulder JW. Imaging Signs and Radiologists' Jargon of Ruptured Breast Implants. Plast Reconstr Surg 102:1281-89. 1998
17. Brandon HJ, Young VL, Jerina KL, Wolf CJ. Scanning Electron Microscopy Characterization of Surgical Instrument Damage to Breast Implants. Plast Reconstr Surg 108:52-61.2001
18. Khan UD: Incidence of Mondor Disease in Breast Augmentation: A retrospective Study of 2052 Breasts Using Inframammary Incision. Plast Reoconstr Surg 122:88-89e Viewpoints 2008
19. Gabriel SE, O'Fallen WM, Kurland LT et al. Risk of connective tissue disease and other disorders after breast implantation. N Eng J Med.1994; 326:1697
20. Sanchez-Guerro J, Schur PH, Sergent JS, Liang MH. Silicone breast implants and rheumatic disease; Clinical, immunologic and epidemiologic studies. Arthritis Rheum. 37:158. 1994
21. Sanchez Guerrero J, Colditz GA, Karlson EW et al. Silicone breast implants and the risk of connective tissue diseases and symptoms. N. Engl J Med. 332:1666.1995
22. Brody GS, Conway DP, Deapan DM et al. Consencus statement on the relationship of breast implants to connective tissue disorders. Plast Reconstr Surg 1992; 9:1102
23. Schwarz K. A bound form of silicon in glycosaminoglycans and polyuronides. Proc Natl Acad Sci USA 70:1608–1612. 1973
24. Clouatre D, Connolly KM: BioSil: Collagen and the health of the skin and bones. Total health: Special report, April 2006
25. Schaefer CJ, Whalen JD, Knapp T, Wooley PH . The influence of silicone implantation in type II collagen induced arthritis in mice. Arthritis Rheum 40:1064-1072. 1997.