Kenalog Injection for the Treatment of Postoperative Seromas: A Case Series

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Introduction

- A seroma is a common post-operative complication consisting of a serous collection of fluid in the surgical space.
- Most are inconsequential and with serial drainage or placement of a seroma catheter are easily treated and resolve quickly. However, a recurrent seroma refractory to conventional treatments can be a frustrating misadventure for both the patient and the surgeon.
- A commonly accepted nonsurgical last line treatment is the injection of a sclerosing agent, doxycycline or tetracycline. For surgeons with this dilemma, this article proposes an alternative treatment, the injection of high dose Kenalog.
- A literature review proved Triamcinolone injection to be effective in auricular seromas, this protocol however is geared towards large, persistent seromas of the torso.

Goal: proposition of the injection of Kenalog as alternative treatment for postoperative recurrent seromas

Methods

- Use a 10-20 ml syringe, bacteriostatic saline, and 10-40mg/ml of Kenalog, Triamcinolone.
- Prep the area of the seroma to be drained with chloroprep or betadine swabs.
- Place a small bleb of .03ml-.05ml of 1% Lidocaine with epinephrine, for enhanced patient comfort during the procedure.
- Then utilize an 18g needle attached to a 20-60ml syringe the seroma is tapped and drained.
- Once the seroma has been emptied of its contents, and the amount of seroma fluid has been quantified, the 18g needle is detached from the syringe but remains in the seroma cavity.
- A new syringe with the planned dosing of steroid mixed with bacteriostatic saline is attached and injected directly into the seroma cavity.
  - It is important to note, that no drain is needed for this procedure and that the triamcinolone mixture will not adequately go retrograde through a Blake or pigtail drain, furthermore, doing so would require dosing to account for loss in the drain and this technique could push bacteria retrograde into the pocket.
  - The best treatment is direct injection with a 18g needle placement through a prepped skin site. This is not painful when in injected and tolerated well by the patients.
  - If a drain is present, one should clamp the drain for a minimum of 3 hours, before opening and placing back to suction or gravity drain.
- As noted, removal is not necessary the mixture may remain in the cavity and will be absorbed.
  - If this is unsettling for the surgeon, it is acceptable to have the patient return in 3-24 hours and attempt drainage of the injected material.
- Follow up is recommended within one week to evaluate if a seroma is present. If so, the treatment can be repeated in that short time frame without superficial sequelae.
- In addition, the patient is placed, into a compression garments after the injection to help facilitate the movement of the fluid to all walls of the seroma.

Steroid Mixture

- Steroid mixture: minimum 100 mg and maximum of 200mg of the Kenalog is drawn into the syringe.
- Bacteriostatic saline is then drawn up to equal minimum 10ml of fluid for injection up to a maximum of 30ml.
- The purpose of this maneuver is to allow enough dilution that the fluid can reasonably be massaged around to touch all sides of the seroma.
- The larger the seroma the higher the injected amount of steroid and of saline.

Seroma Size	Steroid Dose	Final Volume with Saline
30-75 mL	120 mg	12-15 mL
76-150 mL	160 mg	20-25 mL
>150 mL	180-200 mg	25-35 mL

Patient Presentation

Patient 1

- A 65-year-old female who underwent a circumferential body lift and liposuction followed by a postoperative recurrent sacral seroma. The seroma was aspirated on numerous occasions, surgically excised twice, injected with minocycline, and on another occasion doxycycline. Yet, there was no resolve and the seroma continued. The seroma was successfully resolved after Kenalog was injected into the cavity.

Patient 2

- A 56-year-old female who obtained a sacral seroma after undergoing liposuction of flanks, bra roll, and excision of dog ears bilaterally. The sacral seroma was successfully resolved by aspiration of the serous fluid and injection of Kenalog.

Patient 3

- A 60-year-old female who obtained an abdominal seroma after undergoing an abdominoplasty with extended liposuction. The abdominal seroma was successfully resolved by injection of Kenalog.

Patient 4

- A 48-year-old female who underwent bilateral subpectoral silicone breast augmentation, mastopexy, standard abdominoplasty with circumferential liposuction of torso and arms and fat transfer to buttocks. Patient developed a postoperative abdominal seroma. The seroma was successfully resolved by aspiration of the serous fluid and injection of Kenalog.

Patient 5

- A 55-year-old female who underwent a bilateral subpectoral silicone breast augmentation, mastopexy, standard abdominoplasty with circumferential liposuction of torso and arms and fat transfer to buttocks. Patient developed a postoperative sacral seroma that was successfully resolved by aspiration of the serous fluid and injection of Kenalog.

Conclusion

Extensive efforts have been made to determine the root cause of seromas through preoperative risk assessment and surgical techniques to prevent this complication. With success in identifying areas in both that can lead to a decrease in the formation of seromas within a practice for any given procedure. The root cause of the seroma is somewhat more elusive in that it can be ascribed to inflammatory causes, subclinical infections, tissue response to surgical injury, friction planes, as well as lymphatic injury. For this reason, when a chronic persistent seroma or a late term seroma are encountered the causes may be numerous.

Doxycycline still holds as the current standard of care for recurrent abdominal and sacral seromas. The ongoing studies using steroids for auricular seromas, may rival this standard as it has been found to be equally as effective as aspiration. Following this data, the use of Kenalog injection has been shown in these patients to be an effective alternative in treating recurring postoperative seromas.