

Hypersensitivity reactions following laminaria placement

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Abstract

Laminaria tents are commonly placed intracervically prior to elective termination of pregnancy. Three women, each of whom had undergone at least one previous abortion in which a laminaria was utilized, developed hypersensitivity reactions following laminaria placement. The reactions included urticaria, angioedema and respiratory distress. All responded to removal of the laminaria and administration of either diphenhydramine, prednisone, inhaled bronchodilators or subcutaneous epinephrine. One of the women subsequently underwent skin testing and was positive to laminaria. Patients undergoing laminaria placement may manifest a Type I reaction, IgE-mediated sensitivity. Providers should counsel patients with histories of multiple previous laminaria insertions about this possibility, have alternative methods of cervical dilation available, and be able to promptly recognize and treat reactions when they occur. © 2000 Elsevier Science Inc. All rights reserved.

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1. Introduction

Hygroscopic dilators are commonly used prior to elective pregnancy termination to achieve cervical dilation. The laminaria tent is prepared from a natural product, sea kelp, that is dried and then sterilized with ethylene oxide. We present here three cases of hypersensitivity reactions of varying severity following the placement of these dilators in women who had undergone previous pregnancy terminations utilizing the same technique.

2. Case reports

2.1. Case 1

A 21-year-old woman, gravida 5, para 1, presented for pregnancy termination at 8 weeks gestation. She had no history of adverse reactions to any other cause. Her medical history was significant for one spontaneous vaginal delivery, followed by 3 first-trimester pregnancy terminations using laminaria. On this occasion, a laminaria was again placed intracervically, using chlorhexidine gluconate as an antiseptic, with a piece of gauze sponge left in the vagina as

packing. Suction curettage was planned for the following day. Within an hour of discharge, the patient developed hives and pruritus over her trunk and face, as well as swelling of the mouth and tongue. On examination in the clinic, the presence of angioedema and urticarial rash were confirmed. Vital signs were stable and there was no respiratory distress. The laminaria was removed, and intramuscular diphenhydramine and oral prednisone were administered with good effect. The procedure was performed as planned the following day.

This patient has since undergone an uneventful fifth surgical abortion, without laminaria placement pre-operatively. She later consented to skin testing with laminaria and chlorhexidine gluconate to determine which antigen, if any, had stimulated this acute urticarial response. She had a significant reaction to the laminaria preparation, indicating IgE reactivity with anaphylactic potential. There was no reaction to the antiseptic chlorhexidine.

2.2. Case 2

A 22-year-old woman, gravida 3, para 1, presented for termination of pregnancy at 20 weeks gestation at another center 2 h distant. She had no history of allergic reactions. Medical history was significant for one previous vaginal delivery, followed by a termination of pregnancy, with laminaria use, at 13 weeks gestation. On this occasion, two laminaria tents were inserted because of the advanced ges-

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tational age. Approximately 3 h later, she developed an urticarial reaction without evidence of angioedema or respiratory impairment. The laminaria and gauze packing were removed in the emergency room, and diphenhydramine was administered. Her reaction subsided. She planned to return to the original clinic the next day for the termination. Unfortunately, she was lost to follow-up at that point.

2.3. Case 3

A 22-year-old woman, gravida 6, para 3, presented for first-trimester pregnancy termination. Medical history was significant for hay fever, smoking, and recent upper respiratory tract infection, but no adverse reactions to medications were reported. This patient had undergone three previous vaginal deliveries and two previous pregnancy terminations that had utilized laminaria. At this time, a laminaria was again inserted. Within 2 h the patient developed an urticarial rash, generalized pruritus and nausea, followed by shortness of breath. She took diphenhydramine at home and then received inhaled salbutamol and subcutaneous epinephrine at her family physician's office, with a decrease in her distress. On arrival to the emergency room she was dyspneic, with audible wheezes. She was tachycardic and tachypneic, but normotensive. There was facial erythema and an urticarial rash on her arms and abdomen. The laminaria was removed, and intravenous diphenhydramine was administered. Her symptoms settled quickly. The procedure performed the following day was uncomplicated. This patient has also been lost to follow-up.

3. Discussion

Each of the three cases reported describes a hypersensitivity reaction in a patient who has had a laminaria tent placed for cervical dilation prior to elective termination, both in the index pregnancy and at least one previous pregnancy. Two of these cases were derived from our own population of women seeking therapeutic abortion in 1998 or 1999 at a hospital-based clinic that performs approximately 800 procedures each year. (The third procedure presented to our emergency room, but the procedure was to be performed in another center because of the gestational age.) During that time period, essentially all termination procedures at our center included laminaria placement the previous day. Unfortunately, we are unable to estimate the true incidence of this complication as we do not have access to complete data regarding number of previous laminaria placements, and furthermore are only aware of the cases which were symptomatic enough to return to our clinic or emergency room for further treatment.

A MEDLINE search from 1966 to 1999, using the search terms "laminaria," "osmotic dilators," "abortion, therapeutic," "pregnancy," and "anaphylaxis" revealed only one

other reported case of such an occurrence [1]. That woman had undergone three previous terminations, each with the use of laminaria. She developed mild pruritus after the third procedure, but subsequently developed an anaphylactic reaction with the fourth insertion. Radioallergosorbent test (RAST) results were positive to laminaria extract, but the patient declined skin testing. The authors hypothesized that the allergen responsible was the carbohydrate component, called laminarin, of the kelp plant. They also performed radioallergosorbent testing for latex and ethylene oxide, both of which were negative.

Only one of our patients could be contacted in follow-up. Her positive skin test to laminaria indicates IgE reactivity with anaphylactic potential, a Type 1 reaction by the Gell and Coombs' classification of hypersensitivity states. The patients we describe manifested relatively minor reactions, in the form of urticaria, angioedema and mild respiratory distress. None became hypotensive, and all responded quickly to removal of the laminaria and basic treatment for allergic reaction.

Providers of therapeutic abortion services should be aware of the possibility of adverse reactions to the insertion of laminaria. The proposed mechanism for these reactions, and the information from reported cases, would suggest that allergy is only a concern in patients with previous exposures. Therefore, careful history-taking should reveal patients at risk. It should be noted, however, that patients not infrequently underreport the number of previous abortions, and that laminaria are also used prior to other gynecologic procedures which may be overlooked. Other potential concerns about the development of an anaphylactic reaction include the fact that the patient may not reveal to other medical personnel that a laminaria has been inserted, and that with limited abortion services the patient may reside a significant distance from medical attention. We suggest that patients who have undergone previous procedures involving laminaria insertion should be counseled about the symptoms of hypersensitivity reactions and advised to seek prompt attention if a reaction should occur. If a patient has had a previous adverse reaction, consideration should be given to performing the procedure without hygroscopic dilation, inserting one of the synthetic dilators available or using an alternative pre-operative cervical dilating agent such as vaginal misoprostol tablets [2]. Hypersensitivity reactions should be clearly documented, and the patient informed of the significance, so that future laminaria placement is avoided.

References

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