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Research Article

Emu Oil: A Natural Alternative for the Treatment of Vulvar Pain

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Abstract

Objective: To evaluate the impact of topical emu oil on vulvar pain.

Methods: IRB-approved retrospective chart review. Patients included were followed in a university-based outpatient Urogynecology practice and had been offered use of topical emu oil. Patients were identified through ICD-9 coding for atrophic vaginitis, vulvodynia, pelvic pain, and myalgia NOS. As is standard in our practice, all patients had been routinely surveyed for subjective measures of emu oil effect and satisfaction according to the Patient Global Impression of Improvement (PGI-I).

Results: PGI-I responses were significantly different (less responsive) among patients with atrophy compared to those without atrophy, 2.74 vs. 1.92 (p=0.02). Among those who tried emu oil, 80% gave a positive PGI-I score of a little better or greater, 45% responded they felt much or very much better.

Conclusions: This retrospective review demonstrates promise in the use of emu oil as an alternative therapy for the treatment vulvar pain in a gynecologic population.

Keywords: Vulvar pain; Vaginitis; Emu oil; Vulvodynia; Inflammation

Introduction

Vulvar pain is estimated to negatively impact 16-28% of the female population [1,2]. It can include a sensation of burning, irritation, soreness, sharp pain or throbbing that impacts the labia (minora and/or majora), clitoris, mons and/or perineum. According to the ISSVD Terminology, vulvar pain can be divided into categories that include pain that is related to a specific disorder (infectious, inflammatory, neoplastic, neurologic) and pain that is idiopathic (i.e. vulvodynia) [3]. We would also propose that pain and irritation secondary to atrophic vaginitis also be included in the specific disorder category of vulvar pain.

Unfortunately, vulvar pain remains a difficult and, often, frustrating condition to treat. Traditional agents such as topical lidocaine [4], tricyclic antidepressants, baclofen, and gabapentin have shown a wide range in efficacy. In one of the few randomized control trials for vulvodynia treatment, neither oral desipramine nor topical lidocaine demonstrated benefit over placebo [3]. Topical estrogen, Botox injections, topical immune modulators, and capsaicin are additional proposed second- and third-line treatments [4], but not without potential complications. Even some topical lubricants can be irritating to patients. Oral agents can also lead to frequent drowsiness and weight gain in addition to less common, but more serious, side effects such as tachycardia, seizure, stroke, and leukopenia [2].

Emu oil is a topical therapy that has been long present in Aboriginal medicine. It is abstracted from the adipose of the emu bird (Dromaius novahollandiae) and has high content of antioxidants and fatty acids. Traditionally it has been used for pain, moisturizing, and generalized topical healing. While not well known in western literature, this is changing. There are numerous animal studies demonstrating benefit of emu oil on models of arthritis, ear inflammation, wound healing, intestinal mucositis, ulcerative colitis [5-8]. Emu oil has shown benefit in human subjects with regard to radiation dermatitis, areolar irritation in breastfeeding women, and in increased skin permeation of minoxidil use for hair loss [9,10]. Emu oil has also demonstrated a positive effect of fibrinogenesis and collagen synthesis in burn wounds of mice. Although the wounds healed more slowly, application of emu oil increased hair follicles, creating a

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more active, mature follicular layer [11]. The current literature does not report any significant side effects of the oil, however, it is not FDA-approved for the treatment of dermatologic or other medical conditions.

In a gynecologic patient population, emu oil, with its moisturizing and anti-inflammatory nature, represents a safe, alternative topical therapy for vulvar pain. Accordingly, topical emu oil had been offered to patients in our practice, and many had reported subjective benefit. This pilot study was designed to systematically review the responsiveness of patients suffering from vulvar pain who had been advised to utilize topical emu oil. The primary objective was to evaluate measures of satisfaction and benefit of emu oil use for vulvar pain.

Methods

This study is a retrospective chart review, approved through the University of California Irvine IRB. Patients suffering from from vulvar pain who presented to a tertiary care Urogynecologic practice and had been offered emu oil were identified. Patients with vulvar pain were offered emu oil at the discretion of the provider. Those who had been offered emu oil were referred to the source company *Rancho San Diego Emus* (to which our institution has no affiliation or financial tie) which sells 100% emu oil, in order to standardize use. Diagnosis based identification of charts utilized ICD-9 coding for atrophic vaginitis (627.3), vulvodynia (625.7), vaginitis (616.1), pelvic pain (789), myalgia NOS (729.1), and other unspecified symptoms involving the female genital organs (625.9). Patient charts with above diagnoses were then screened for emu oil recommendation.

In those recommended to use emu oil, a full chart review was completed. This included data on: patient demographics, history and diagnosis, compliance, continuation, recommendation of use to others, adverse reactions, general satisfaction, and Patient Global Impression of Improvement (PGI-I) related to emu oil at follow-up. Patients were consented to participate in the study. The PGI-I has been previously validated in incontinence and prolapse research [12,13]. It consists of a 7-point response scale to treatment based on patient perception including feeling:

1. Very much better
2. Much better
3. A little better
4. No change
5. A little worse
6. Much worse
7. Very much worse

Among diagnoses identified using emu oil, statistical analysis compared those with vulvodynia, atrophy, pelvic pain (dyspareunia, pelvic floor tension myalgia), infection (vaginitis, recurrent yeast), and other (lichen sclerosis, lichen planus, radiation cystitis). Sample characteristics were described using means and standard deviations for continuous variables, and frequencies and percents for categorical variables. PGI-I differences among diagnoses were compared with Mann-Whitney U test for non-parametric/ordinal data. Stated analysis was completed with SYSTAT version 11.

Results

There were 703 charts identified based on patient diagnosis. Ninety-three patients received a recommendation to use emu oil. Among those patients, 23 were lost to follow-up, and follow-up documentation was available for 70 patients.

Fifty-two patients of the 70 patients had tried emu oil for a mean duration of 9.2 months (SD 11.0). The average patient age was 58 years (range 21-88), and average BMI was 25 (Table 1). Among fully reviewed charts, patient self-identified ethnicity included: 87% Caucasian (n = 61), 7% Asian (n = 5), 4% other (n = 3), and 1% Hispanic (n = 1). There were no African Americans identified. There was no difference in regard to age, ethnicity, or BMI among those who tried versus those who did not trial emu oil. Thirty percent of patients (n = 21) had not undergone treatment for their vulvar pain prior to care in our clinic. Topical estrogen, topical lidocaine, pregabalin, diflucan were listed among prior treatments. One patient had previously undergone vestibulectomy.

Patient diagnosis included vulvodynia 26% (n = 18), atrophy 76% (n = 53), pelvic pain 44% (n = 31), infectious 16% (n = 11) and other 7% (n = 5) (Table 1). There was no difference among those who tried versus those who did not try emu oil based on diagnosis. At last point of contact, 28/52 (54%) continued regular use. Among those who discontinued, 4/24 (17%) stated it was due to symptom resolution, 12/24 (50%) for dissatisfaction, and 8/24 (33%) for neutral reasons (including running out of the oil and not refilling).

Of those who tried emu oil, 74% stated they would recommend it to others, 10% would not, and 16% were unsure. Specific to diagnosis, PGI-I response to treatment was significantly better among patients without versus those with atrophy, 2.74 vs. 1.92 (p = 0.020) (Table 2). Among those who tried emu oil, 80% gave a positive PGI-I score of a little better or greater, 45% responded they felt much or very much better (Table 3). Only one patient (diagnosis: pain and atrophy) stated they felt a little worse (irritation). Five patients noted no change in symptoms (3/5 with diagnosis: atrophy). None felt much or very much worse according to the PGI-I.

Discussion

Overall, patients who used emu oil for vulvar pain

		Diagnosis (more than one dx may be applicable)	N=52
Age (years)	58.24	Vulvodynia	26%
BMI (kg/m^2)	25.11	Atrophy	76%
Gravity	2.72	Pelvic Pain	44%
Parity	2.02	Infectious	16%
Mean duration of use (months)	9.21	Other	7%

Table 1: Baseline Demographics.

Diagnosis	Diagnosis Present Mean PGI-I (SD)	Diagnosis Absent Mean PGI-I (SD)	P Value
Vulvodynia	2.27 (1.16)	2.67 (1.04)	0.242
Atrophy	**2.74 (1.04)**	**1.92 (1.0)**	**0.020**
Pelvic Pain	2.69 (1.09)	2.40 (1.08)	0.389
Infection	2.25 (1.16)	2.60 (1.07)	0.536

Table 2: PGI-I According to Diagnosis.

PGI-I	N=52
Very much better	11
Much better	13
A little better	18
No change	9
A little worse	1

Table 3: Patient Global Impression of Improvement (PGI-I).

demonstrated a high level of satisfaction, continuation and willingness to recommend the product. No patients responded that emu oil made her condition "much" or "very much worse". Only one responded "a little worse" with increased irritation.

Interestingly, emu oil use by PGI-I scores, demonstrated significantly greater improvement in patients without atrophy compared to those with atrophy. Inflammatory and idiopathic pain conditions versus atrophic irritation may respond better to the anti-inflammatory nature of emu oil. While the exact mechanism of action of emu oil is not known, it does follow that emu oil contains high contents of omega fatty acids -3, -6, and -9. These fatty acids have anti-inflammatory properties via cyclooxygenase, lipoxygenase and lipoxin pathways, as well as in production of prostaglandin E1 (also with strong anti-inflammatory properties) [14].

While emu oil has been known for its moisturizing ability and epithelial penetration enhancement, the lack of moisture in atrophic vaginitis may just not respond as well to emu oil. Many moisturizing alternative therapies have failed to provide comparable success to estrogen replacement for atrophy.[15] While emu oil did provide some relief to these patients (mean PGI-I of 2.74), the thinning of epithelium and changes in pH involved with atrophic vaginitis, have still consistently responded best to estrogen replacement [15,16]. Still, as effective options, without significant side effect profiles, are greatly needed for vulvar pain conditions such as vulvodynia, emu oil is a promising alternative. In the non-atrophic patient population, the mean PGI-I of 1.92 was very promising in its correlation to the impact response of "much" or "very much better."

We recognize limitations in this study due to the retrospective and pilot nature of its design. Our study also lacks a control group for a proper comparative effect of emu oil versus placebo or other topical therapies. Additionally, this population is predominantly Caucasian, seen in a tertiary care setting, and the majority had undergone prior therapy-generalizability to other populations is limited. Still, emu oil represents a novel, well tolerated, and beneficial alternative gynecologic treatment for vulvar pain.

Conclusion

Emu oil demonstrates a high level of patient satisfaction for a variety of conditions that may cause vulvar pain and irritation. As a safe, non-hormonal medication with no reported side effects, certain patients who are opposed to estrogen or in whom estrogen is contraindicated may benefit from its use. Additional prospective research, with emphasis on non-atrophic vulvar pain conditions, is warranted.

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