and female faculty to ensure their equitable representation in all levels of academic dermatology. This will ensure diversification and improve health care delivery to all populations in the United States.

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Dermatologic disorders in transgender patients: A retrospective cohort of 442 patients

To the Editor: Although the number of patients identifying as transgender has increased in recent decades,[1] there remains a practice gap regarding optimal dermatologic care for transgender patients.[2-4] A retrospective chart review of all transgender patients evaluated at the Mayo Clinic in Rochester, Minnesota, from March 15, 1986, through June 21, 2018, was performed using billing codes for gender dysphoria, gender identity disorder, and transsexualism to identify patients of all ages for potential inclusion. Medical records were reviewed to ensure patients selected for inclusion met gender dysphoria

Table I. Demographics and characteristics of transgender patients who presented with dermatologic concerns

Patient characteristics (N = 214)	Results
Age at GD diagnosis, y	
Mean	28.8
Median	25
Range	11-75
Age at dermatologic diagnosis, y	
Mean	31.7
Median	25
Range	11-77
Sex assigned at birth, n (%)	
AFAB	80 (37.4)
AMAB	134 (62.6)
Gender identity, n (%)	
Man/male	79 (36.9)
Woman/female	129 (60.3)
Nonbinary or other	6 (2.8)
GD-related medical intervention received	
Masculinizing HT	67 (31.3)
Feminizing HT	130 (60.8)
Puberty suppression (leuprolide)	10 (4.7)
Gender-affirming surgery, n (%)	93 (43.5)
Masculinizing chest surgery	31 (14.5)
Phalloplasty	1 (0.5)
Vaginoplasty	41 (19.2)
Orchiectomy	48 (22.4)
Breast augmentation	23 (10.8)
Facial surgery	18 (8.4)
Race, n (%)	
White	187 (87.4)
Black	2 (0.9)
Hispanic or Latino	7 (3.3)
Asian	3 (1.4)
Mixed race/other	12 (5.6)
American Indian or Alaska Native	3 (1.4)

AFAB, Assigned female at birth; *AMAB*, assigned male at birth; *GD*, gender dysphoria; *HT*, hormone therapy.

Table II. Gender-affirming minimally invasive procedures received by transgender patients who presented with dermatologic concerns

Procedures received	Non-cisgender AMAB patients, n (%) (N = 134)	Non-cisgender AFAB patients, n (%) (N = 80)
Hair removal (any)	94 (70.2)	0 (0)
Laser hair removal only	64 (47.8)	0 (0)
Electrolysis only	4 (3.0)	0 (0)
Both laser hair removal and electrolysis	26 (19.4)	0 (0)
Hair transplant	2 (1.5)	0 (0)
Other laser treatment	0 (0.0)	2 (2.5)
Facial feminization with injectables/dermal fillers	10 (7.5)	0 (0)

AFAB, Assigned female at birth; *AMAB*, assigned male at birth.

diagnostic criteria based on current *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* diagnostic criteria. When the threshold for inclusion was unclear, specific patients were reviewed by endocrinology providers. Patients with disorders of sexual development and those assigned intersex at birth were excluded. Statistical analysis was performed using the JMP Pro statistical software package, version 13.0 (SAS Institute Inc, Cary, NC). Comparisons were evaluated using Fisher's exact test. All *P* values less than .05 were considered statistically significant. Limitations include retrospective design, varied follow-up, selection via International Classification of Diseases, Ninth Revision code, and lack of generalizability.

Of 729 patients reviewed, 442 met inclusion criteria. Of these, 214 (48.4%) received dermatologic diagnoses and/or procedures. The characteristics of patients who presented with dermatologic concerns are outlined in Table I. In non-cisgender assigned female at birth (AFAB) patients presenting with dermatologic concerns (n = 80), acne was diagnosed in 63 (78.8%), with 55 (68.8%) of those diagnosed receiving testosterone therapy, with a mean time to presentation of 11.5 months (range, 1-60 months) after initiating testosterone.

Non-cisgender AFAB patients receiving testosterone therapy were more likely to develop acne ($P < .0001$). Androgenetic alopecia was diagnosed in 11 non-cisgender AFAB patients, with a mean and median time of 12.8 years and 6 years, respectively, (range, 1-44 years) after starting testosterone. Testosterone therapy was associated with increased risk of androgenetic alopecia ($P = .0036$). In non-cisgender AFAB patients who had not received masculinizing chest surgery (n = 49), 4 (8.2%) ($P = .1539$) were diagnosed with infections (candidal intertrigo, tinea versicolor) presumed to be associated with chest binding based on presentation and binding history.

Non-cisgender assigned male at birth (AMAB) patients were significantly more likely to pursue minimally invasive procedures as part of gender-affirming treatment ($P < .0001$). Gender-affirming minimally invasive procedures are outlined in Table II. In non-cisgender AMAB patients presenting with a dermatologic concern (n = 134), 10 (7.5%) received a new diagnosis of atopic dermatitis, with 80% of those diagnosed receiving hormone therapy. Feminizing hormone therapy was significantly associated with development of atopic dermatitis ($P = .0279$). This cohort included a case of vulvar condyloma and a case of vulvar lichen sclerosus in patients who had undergone vaginoplasty; although rare, this illustrates the potential for localized vaginal skin disease to develop after surgery.

In conclusion, dermatologic care is an essential part of the transition process for many transgender patients. It is important to recognize the increased risk of acne and androgenetic alopecia in non-cisgender AFAB patients receiving testosterone.[2,5] In non-cisgender AMAB patients, special considerations include atopic skin disease and the need for minimally invasive procedures.[2,3]

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Treatment of calcinosis cutis with sodium thiosulfate therapy

To the Editor: Calcinosis cutis (CC) is a rare cutaneous condition defined by abnormal depositions of insoluble calcium salts in the skin and subcutaneous tissue.[1] Finding effective and safe treatments for these calcified lesions has been a known challenge among dermatologists. A variety of therapies have been reported, with limited success, including the treatment of CC with the use of warfarin, bisphosphonates, minocycline, intralesional corticosteroids, surgical excision, and carbon dioxide laser therapy.[2]

Sodium thiosulfate (STS) has been attempted as a CC treatment and demonstrated successful in a small number of reported cases.[3,4] Exhibiting characteristics of a potent antioxidant and vasodilator, STS aids in the dissolution of calcium deposits and provides rapid resolution of pain.[5] This retrospective analysis evaluated the efficacy of using STS therapy to treat patients with CC. Here we examine 80 CC lesions treated with 1 of the 3 variations of STS treatment: topical, intradermal, and intravenous.

Patients who were prescribed topical STS were advised to apply topical STS serum, compounded 50:50 with petrolatum or Eucerin (Beiersdorf AG, Hamburg, Germany) ointment, twice daily until complete dissolution of calcinosis. Intradermal STS injections were performed using undiluted 12.5 g (50 mL) STS in doses of 0.1 to 1 mL. Injections were provided once every 3 weeks until dissolution of the calcinosis was observed or the patient discontinued therapy. Intravenous STS was administered to 2 patients who presented with exophytic and innumerable large tumoral calcifications.

Response to treatment for STS regimens was determined by clinical examination performed by the attending physician. Success rate was graded in a binary manner of (1) complete response to treatment and dissolution of calcium deposit or (2) failure to entirely resolve CC lesion.

Success rates of STS treatment regimens for various sizes of CC lesions treated are summarized in Table I. Topical STS therapy completely resolved all of the 53 CC lesions examined that were less than 0.2 cm in size. CC lesions that fell between the ranges of 0.2 to 0.3 cm and of 0.3 to 0.5 cm had reduced success rates of 78% and 20%, respectively, when treated with topical STS. Intradermal STS injections were a successful therapeutic regimen for all calcifications that measured 2.0 cm or less in size, with a success rate of 100%. However, intradermal STS injections failed to resolve any calcinosis lesions greater than 2.0 cm in size. Intravenous STS failed to resolve the exophytic and tumoral CC lesions.

Of the 3 STS therapies examined in this study, we recommend intradermal injections as a novel treatment to safely and effectively resolve microscopic and small CC lesions (Fig 1). Topical STS could also

Table I. Success rates of calcinosis cutis lesions treated with topical, intradermal, or intravenous sodium thiosulfate therapy

Sodium thiosulfate therapy	Size of lesion, cm	Number of lesions	Success rate, %
Topical sodium thiosulfate	<0.1	41	100
	0.1-0.2	12	100
	0.2-0.3	4	78
	0.3-0.5	5	20
Intradermal sodium thiosulfate	<0.5	10	100
	0.5-2.0	3	100
	>2.0	3	0
Intravenous sodium thiosulfate	…	2	0