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RESEARCH LETTER

WILEY

Top cited articles in dissecting cellulitis of the scalp: A bibliometric analysis

Dear Editor,

Dissecting cellulitis of the scalp (DCS) is a chronic, recalcitrant skin condition that disproportionately affects African-American men.[1] There is a lack of bibliometric data regarding DCS publications. Herein, we examined the characteristics of top cited DCS articles and evaluated DCS research trends over time.

In January 2023, the Web of Science database was used to identify DCS-related publications using the following search terms: "dissecting cellulitis" OR "perifolliculitis capitis abscedens" OR "dissecting folliculitis" OR "Hoffman disease". Two independent authors (R.M. and E.M.) analyzed relevant articles for year of publication, authorship, country of origin, study topic, and study design. Any discrepancies were discussed to consensus with a third reviewer (J.L.H.).

The database search resulted in a total of 324 articles. Table 1 shows the 50 most-cited articles. Most (70%, 35/50) of the highly cited papers were published between 2000–2019. The top cited article (cited 149 times) was a general narrative review on primary cicatricial alopecias published in the *Journal of the American Academy of Dermatology* (*JAAD*) in 2005. The article with the highest average citations per year (10.8) was a narrative review on trichoscopy published in the *Journal of Dermatological Case Reports* in 2011.

The most highly cited study topic was DCS treatments, followed by diagnostic techniques and narrative review articles (Figure 1). Of the 26 articles that discussed treatments, 13 (50%) discussed medical treatments including oral retinoids (7), biologics (3), zinc (2), antibiotics (2), and anti-androgen drugs including cyproterone acetate and ethinyl estradiol (1). All studies on biologics were published between 2008–2015. Nine articles (34.6%) were on procedural treatments including lasers (4), surgical excisions with or without skin grafts (3),x-ray epilation (1), and radiation treatment (1). Four studies (15.4%) described both medical and procedural treatments. There were 12 articles focused on diagnosis, including dermoscopy (5), histopathology (5), dermoscopy and histopathology (1), and clinical features (1).

Of the 50 articles, most were case reports/series (54%) followed by narrative reviews (30%), prospective/retrospective cohort studies (12%), and case-controlled studies (4%). In the past decade, there is an increasing trend of highly cited papers moving away from case reports/series and instead including case-controlled studies, retrospective cohort studies, and narrative reviews (Figure 2). The majority of the top 50 cited articles were from North America (44%, 22/50) or Europe (42%, 21/50). The *JAAD* and the *British Journal of Dermatology* had the highest number of top-cited articles ($n = 8$ each) followed by the *Archives of Dermatology* ($n = 5$).

Top-cited DCS literature has grown exponentially over the last two decades, likely reflecting increased interest from researchers and clinicians. More than three-fourths (76%) of the top 50 highly cited articles discussed DCS diagnosis and treatment, reflective of both the diagnostic and therapeutic challenges that clinicians can face with distinguishing DCS from other scarring alopecias and with DCS management. In addition, during the past decade, there has been a shift in focus from case reports/series to more rigorous study types, such as case-controlled and cohort studies. However, no randomized controlled trials (RCTs) were amongst the top 50 cited papers; overall, there have been no RCTs for DCS reported in the literature.[2]

The pathogenesis of DCS is still under investigation. All three top-cited pathogenesis papers on DCS discussed DCS in the context of keratitis-ichthyosis-deafness (KID) syndrome. The association between this syndrome and the follicular occlusion tetrad merits further investigation. Of note, DCS shares many similarities with hidradenitis suppurativa (HS), and some studies have posited that the two diseases are different localizations of the same disease.[3] HS has historically been a neglected disease, however, in the past decade, the number of clinical trials and publications on HS have grown exponentially. Though this renaissance has yet to be seen for DCS, given the similarities between and co-occurrence of the two conditions, patients with DCS may also benefit from expansion of HS treatment options.

Most articles were from Western nations, indicating that more DCS research should be encouraged in underrepresented regions, particularly since skin of color patients are disproportionately affected by DCS. More comprehensive studies on DCS epidemiology are also needed, including wider representation from non-Western countries to better understand if different phenotypes of DCS exist. In addition, biologics, which have revolutionized the treatment of HS,[4] merit further study in DCS as a potential long-term therapeutic option.

To our knowledge, this study presents novel findings regarding bibliometric trends in DCS literature. Study limitations include that articles published recently may not have had much time to accumulate

TABLE 1 The top 50 cited papers in dissecting cellulitis of the scalp.

Rank	Title	Article Information (authors, journal, year)	Study design	Total Citations	Average citations per year
1	Update on primary cicatricial alopecias	Ross EK, Tan E, Shapiro J. *J Am Acad Dermatol*. 2005	Narrative review	149	8.3
2	Trichoscopy update 2011	Rudnicka L, Olszewska M, Rakowska A, Slowinska M. *J Dermatol Case Rep*. 2011	Narrative review	129	10.8
3	Primary cicatricial alopecias: Clinicopathology of 112 cases	Tan E, Martinka M, Ball N, Shapiro J. *J Am Acad Dermatol*. 2004	Cohort (retrospective)	122	6.4
4	Histopathology of alopecia: a clinicopathological approach to diagnosis	Stefanato CM. *Histopathology*. 2010	Narrative review	107	8.2
5	Scarring alopecia and the dermatopathologist	Sperling LC. *Journal of Cutaneous Pathology*. 2001	Narrative review	88	4
6	Trichoscopy of Cicatricial Alopecia	Rakowska A, Slowinska M, Kowalska-Oledzka E, et al. *J Drugs Dermatol*. 2012	Case controlled study	85	7.7
7	Follicular occlusion triad: hidradenitis suppurativa, acne conglobata, and dissecting cellulitis of the scalp	Chicarilli ZN. *Annals of Plastic Surgery*. 1987	Case Report/Series	84	2.3
8	Management of primary cicatricial alopecias: options for treatment	Harries MJ, Sinclair RD, MacDonald-Hull S, Whiting DA, Griffiths CEM, Paus R. *Br J Dermatol*. 2008	Narrative review	66	4.4
9	Primary cicatricial alopecia: Lymphocytic primary cicatricial alopecias, including chronic cutaneous lupus erythematosus, lichen planopilaris, frontal fibrosing alopecia, and Graham-Little syndrome	Bolduc C, Sperling LC, Shapiro J. *J Am Acad Dermatol*. 2016	Narrative review	61	8.7
10	How not to get scar(r)ed: pointers to the correct diagnosis in patients with suspected primary cicatricial alopecia	Harries MJ, Trueb RM, Tosti A, et al. *Br J Dermatol*. 2009	Narrative review	61	4.4
11	Off-label use of TNF-alpha inhibitors in a dermatological university department: retrospective evaluation of 118 patients	Sand FL, Thomsen SF. *Dermatol Ther*. 2015	Cohort (retrospective)	59	7.4
12	A novel connexin 26 gene mutation associated with features of the keratitis-ichthyosis-deafness syndrome and the follicular occlusion triad	Montgomery JR, White TW, Martin BL, Turner ML, Holland SM. *J Am Acad Dermatol*. 2004	Case Report/Series	59	3.1
13	The histopathology of primary cicatricial alopecia	Sperling LC, Cowper SE. *Seminars in Cutaneous Medicine and Surgery*. 2006	Narrative review	56	3.3
14	Tufted folliculitis of the scalp: a distinctive clinicohistological variant of folliculitis decalvans	Annessi G. *Br J Dermatol*. 1998	Case Report/Series	51	2.0
15	Cicatricial alopecia: classification and histopathology	Somani N, Bergfeld WF. *Dermatologic Therapy*. 2008	Narrative review	50	3.3
16	Dissecting cellulitis of the scalp: Response to isotretinoin	Scerri L, Williams HC, Allen BR. *Br J Dermatol*. 1996	Case Report/Series	50	1.9
17	Evaluation and diagnosis of the hair loss patient Part II. Trichoscopic and laboratory evaluations	Mubki T, Rudnicka L, Olszewska M, Shapiro J. *J Am Acad Dermatol*. 2014	Narrative review	49	5.4
18	Dissecting cellulitis of the scalp: a retrospective study of 51 patients and review of literature	Badaoui A, Reygagne P, Cavelier-Balloy B, et al. *Br J Dermatol*. 2016	Cohort (retrospective)	45	6.4
19	Keratitis-ichthyosis-deafness syndrome in association with follicular occlusion triad	Maintz L, Betz RC, Allam JP, et al. *Eur J Dermatol*. 2005	Case Report/Series	45	2.5

(Continues)

TABLE 1 (Continued)

Rank	Title	Article Information (authors, journal, year)	Study design	Total Citations	Average citations per year
20	Perifolliculitis capitis abscedens et suffodiens (hoffman): Complete healing associated with oral zinc therapy	Berne B. *Arch Dermatol*. 1985	Case Report/Series	45	1.2
21	Recalcitrant scarring follicular disorders treated by laser-assisted hair removal: A preliminary report	Chui CT, Berger TG, Price VH, Zachary CB. *Dermatologic Surgery*. 1999	Case Report/Series	44	1.8
22	Perifolliculitis capitis abscedens et suffodiens: Its successful treatment with x-ray epilation	McMullan FH. *AMA Arch Derm*. 1956	Case Report/Series	44	0.7
23	Evaluation and diagnosis of the hair loss patient	Mubki T, Rudnicka L, Olszewska M, Shapiro J. *J Am Acad Dermatol*. 2014	Narrative review	38	4.2
24	3 Cases of Dissecting Cellulitis of the Scalp Treated With Adalimumab Control of Inflammation Within Residual Structural Disease	Navarini AA, Trüeb RM. *Arch Dermatol*. 2010	Case Report/Series	38	2.9
25	Dissecting cellulitis treated with the long-pulsed Nd : YAG laser	Krasner BD, Hamzavi FH, Murakawa GJ, Hamzavi IH. *Dermatol Surg*. 2006	Case Report/Series	37	2.2
26	Dissecting cellulitis in a white male: A case report and review of the literature	Stites PC, Boyd AS. *Cutis*. 2001	Case Report/Series	37	1.7
27	Primary cicatricial alopecia: Other lymphocytic primary cicatricial alopecias and neutrophilic and mixed primary cicatricial alopecias	Bolduc C, Sperling LC, Shapiro J. Primary cicatricial alopecia. *J Am Acad Dermatol*. 2016	Narrative review	35	5
28	Hair and scalp disorders in ethnic populations	McMichael AJ. *Dermatologic Clinics*. 2003	Narrative review	35	1.8
29	Familial perifolliculitis-capitis-abscedens-et-suffodiens in 2 brothers successfully treated with isotretinoin	Bjellerup M, Wallengren J. *J Am Acad Dermatol*. 1990	Case Report/Series	33	1
30	Successful treatment of dissecting cellulitis and acne conglobata with oral zinc	Kobayashi H, Aiba S, Tagami H. *Br J Dermatol*. 1999	Case Report/Series	32	1.3
31	Dissecting cellulitis of the scalp in 2 girls	Ramesh V. *Dermatology*. 1990	Case Report/Series	30	0.9
32	Frequency of the Types of Alopecia at Twenty-Two Specialist Hair Clinics: A Multicenter Study	Vañó-Galván S, Saceda-Corralo D, Blume-Peytavi U, et al. *Skin Appendage Disord*. 2019	Cohort (retrospective)	29	7.3
33	Use of an 800-nm pulsed-diode laser in the treatment of recalcitrant dissecting cellulitis of the scalp	Boyd AS. *Arch Dermatol*. 2002	Case Report/Series	29	1.4
34	Perifolliculitis capitis abscedens et suffodiens—report of a successful therapeutic scalping	Moschella SL. *Arch Dermatol*. 1967	Case Report/Series	28	0.5
35	Malignant proliferating pilar tumors arising in KID syndrome: A report of two patients	Nyquist GG, Mumm C, Grau R, et al. *Am J Med Genet*. 2007	Case Report/Series	26	1.6
36	Dissecting folliculitis (dissecting cellulitis) of the scalp: a 66-patient case series and proposal of classification	Lee CN, Chen W, Hsu CK, Weng TT, Lee JYY, Yang CC. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft*. 2018	Case Report/Series	25	5
37	Black dots' seen under trichoscopy are not specific for alopecia areata	Kowalska-Oledzka E, Slowinska M, Rakowska A, et al. *Clinical and Experimental Dermatology*. 2012	Case controlled study	25	2.3
38	Arthropathy associated with cystic acne, hidradenitis suppurativa, and perifolliculitis capitis abscedens et suffodiens: Treatment with isotretinoin	Libow LF, Friar DA. *Cutis*. 1999	Case Report/Series	25	1
39	Alopecic and Aseptic Nodules of the Scalp (Pseudocyst of the Scalp): A Prospective Clinicopathological Study of 15 Cases	Abdennader S, Vignon-Pennamen MD, Hatchuel J, Reygagne P. *Dermatology*. 2011	Cohort (prospective)	24	2

(Continues)

TABLE 1 (Continued)

Rank	Title	Article Information (authors, journal, year)	Study design	Total Citations	Average citations per year
40	Modern external beam radiation therapy for refractory dissecting cellulitis of the scalp	Chinnaiyan P, Tena LB, Brenner MJ, Welsh JS. *Br J Dermatol*. 2005	Case Report/Series	24	1.3
41	Successful treatment of recalcitrant dissecting cellulitis of the scalp with complete scalp excision and split-thickness skin graft	Bellew SG, Nemerofsky R, Schwartz RA, Granick MS. *Dermatol Surg*. 2003	Case Report/Series	24	1.2
42	Dissecting cellulitis of the scalp	Williams CN, Cohen M, Ronan SG, Lewandowski CA. *Plastic and Reconstructive Surgery*. 1986	Case Report/Series	24	0.6
43	Clinical features of primary cicatricial alopecia in Chinese patients	Zhang X, Qi S, Zhao Y, Zhang X, Li S, Cao H. *Indian J Dermatol Venereol Leprol*. 2014	Cohort (retrospective)	23	2.6
44	Treatment strategies for alopecia	Tosti A, Duque-Estrada B. *Expert Opinion on Pharmacotherapy*. 2009	Narrative review	23	1.6
45	Successful therapy of the follicular occlusion triad in a young woman with high-dose oral antiandrogens and minocycline	Goldsmith PC, Dowd PM. *J R Soc Med*. 1993	Case Report/Series	23	0.8
46	Treatment of perifolliculitis capitis abscedens et suffodiens with the carbon-dioxide laser	Glass LF, Berman B, Laub D. *The Journal of Dermatologic Surgery and Oncology*. 1989	Case Report/Series	23	0.7
47	Dissecting cellulitis of the scalp—response to isotretinoin	Taylor AEM. *The Lancet*. 1987	Case Report/Series	23	0.6
48	Perifolliculitis capitis abscedens et suffodiens successfully controlled with infliximab	Brandt HRC, Malheiros APR, Teixeira MG, Machado MCR. *Br J Dermatol*. 2008	Case Report/Series	22	1.5
49	Dissecting cellulitis in a white male: response to isotretinoin	Koca R, Altinyazar HC, Isiksacan Ozen O, Solak Tekin N. *Int J Dermatol*. 2002	Case Report/Series	21	1
50	Primary cicatricial alopecias	Otberg N. Primary Cicatricial Alopecias. *Dermatologic Clinics*. 2013	Narrative review	20	2

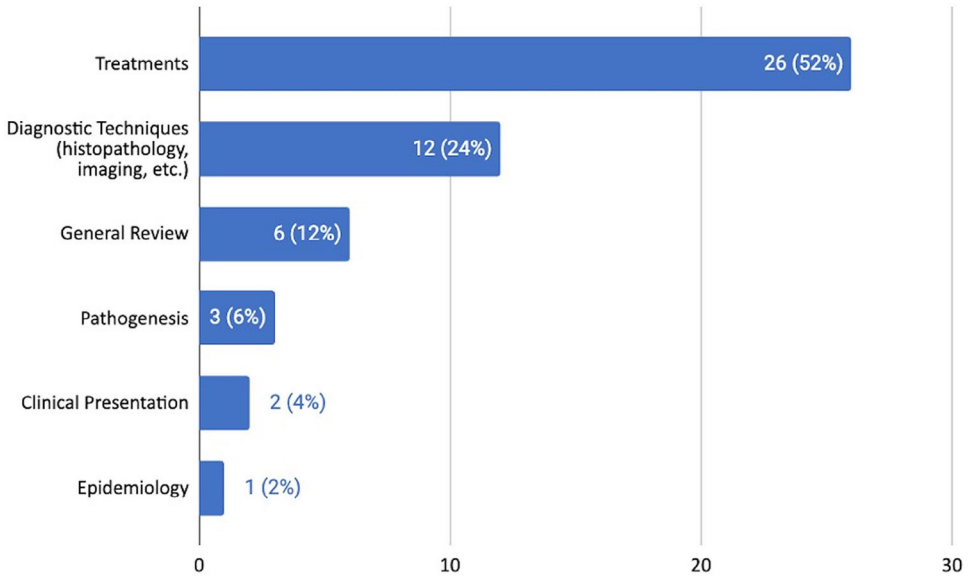

FIGURE 1 Study topics in the top 50 cited dissecting cellulitis of the scalp articles.

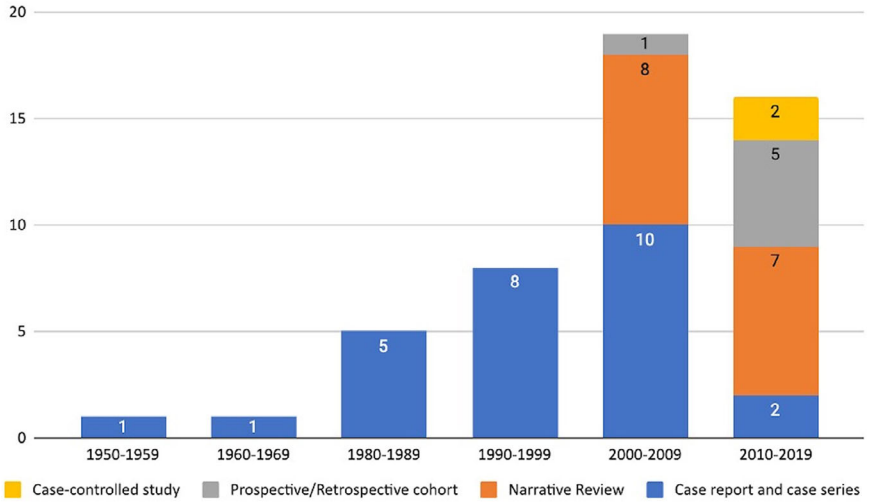

FIGURE 2 Number of articles and their study design by decade of publication.

citations. Future investigations on DCS pathogenesis may shed insight on important genetic and environmental factors that can contribute to DCS initiation and progression and elucidate whether DCS and HS have overlapping inflammatory and mechanistic pathways. Larger prospective studies and RCTs are needed to guide treatment decisions for patients with DCS.

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CONFLICT OF INTEREST STATEMENT

V.Y.S. is on the board of directors for the Hidradenitis Suppurativa Foundation (HSF), an advisor for the National Eczema Association, is a stock shareholder of Learn Health and has served as an advisory board member, investigator, speaker, and/or received research funding from Sanofi Genzyme, Regeneron, AbbVie, Genentech, Eli Lilly, Novartis, SUN Pharma, LEO Pharma, Pfizer, Incyte, Boehringer Ingelheim, Alumis Aristea Therapeutics, Menlo Therapeutics, Dermira, Burt's Bees, Galderma, Kiniksa, UCB, Target-PharmaSolutions, Altus Lab/cQuell, MYOR, Polyfins Technology, GpSkin and Skin Actives Scientific. J.L.H. is on the Board of Directors for the Hidradenitis Suppurativa Foundation, has served as a consultant for AbbVie, Aclaris, Boehringer Ingelheim, Novartis, and UCB, as a speaker for AbbVie, and as an investigator for Amgen, Aristea, Boehringer Ingelheim, and Incyte. All other authors report no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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REFERENCES

1. Scheinfeld NS. A case of dissecting cellulitis and a review of the literature. *Dermatol Online J*. 2003;9(1):8.
2. Thomas J, Aguh C. Approach to treatment of refractory dissecting cellulitis of the scalp: a systematic review. *J Dermatolog Treat*. 2021;32(2):144-149. doi:10.1080/09546634.2019.1642441
3. Federico A, Rossi A, Caro G, et al. Are dissecting cellulitis and hidradenitis suppurativa different diseases? *Clinics in Dermatology*. 2021;39(3):496-499. doi:10.1016/j.clindermatol.2021.01.002
4. Goldburg SR, Strober BE, Payette MJ. Hidradenitis suppurativa: Current and emerging treatments. *J Am Acad Dermatol*. 2020;82(5):1061-1082. doi:10.1016/j.jaad.2019.08.089