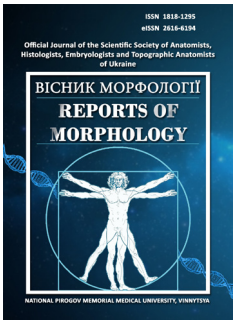
DOI: 10.31393/morphology-journal-2025-31(4)-03 Reports of Morphology, Vol. 31, №4, Pages 22-28

ISSN 1818-1295 eISSN 2616-6194

REPORTS OF MORPHOLOGY

Official Journal of the Scientific Society of Anatomists, Histologists, Embryologists and Topographic Anatomists of Ukraine

journal homepage: https://morphology-journal.com



Features of skinfold thickness in Ukrainian men with alopecia areata

Shakatira M. A. M., Dmytrenko S. V., Prokopenko S. V., Golubovsky I. A., Gonchar O. O., Zverkhovska V. F., Kyselova T. M.

National Pirogov Memorial Medical University, Vinnytsya, Ukraine

ARTICLE INFO

Received: 10 February 2025

Accepted: 25 August 2025

UDC: 616.594.14:572.087

CORRESPONDING AUTHOR

e-mail: mohammedshakhatren00@gmail.com

Shakatira M. A. M.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

FUNDING

Not applicable.

DATA SHARING

Data are available upon reasonable request to corresponding author.

Alopecia areata is believed to be an isolated dermatological disease and also a potential marker of systematic diseases, particularly changes in body fat distribution as well as metabolic risk. An analysis of the thickness of skin-fat folds in men with alopecia areata in Ukraine makes it possible to expand our understanding of pathogenetic mechanisms of this disease and to approach more deeply its early diagnosis, and individual therapy. The aim of the study was to determine the features of skinfold thickness (SFT) in young adult Ukrainian men with alopecia areata. A clinical and instrumental examination (using an ARAMO ASW 300 dermatoscope-trichoscope) and an anthropological assessment (measurement of SFT in accordance with the recommendations of P. P. Shaparenko) were performed in 81 young adult Ukrainian men with alopecia areata. The severity of alopecia areata was determined according to I. V. Shutskiy. As a control group, we used SFT indicators of 82 apparently healthy Ukrainian men of the same age group from the database of the Research Center of Vinnytsia National Pirogov Memorial Medical University. Statistical processing of the results was carried out using the licensed software package Statistica 6.0, applying nonparametric evaluation methods. Significantly higher values of SFT were found in Ukrainian men with alopecia areata overall and at different degrees of severity, compared with practically healthy men, on the posterior (by 13.42-22.11 %), anterior surface of the arm (by 47.16-66.90 %), forearm (by 35.56-47.78 %), chest (by 70.59-87.86 %), and flank (by 21.77-31.63 %), and significantly lower SFT values on the thigh (by 15.73-20.98 %) and under the inferior angle of the scapula (by 36.13-47.59 %). Between groups of Ukrainian men with alopecia areata of different severity, only significantly lower SFT values on the posterior (by 9.31 % and 14.08 %) and anterior (by 9.73 % and 13.42 %) surfaces of the arm in patients with grade I severity compared with patients with grades II and III were established. The identified oppositely directed changes in SFT on the upper limb and thigh, as well as under the inferior angle of the scapula versus on the chest and flank in Ukrainian men with alopecia areata overall and at different degrees of severity, are manifestations of a "subpathological" constitutional type in this disease.

Keywords: *skin diseases, alopecia areata, practically healthy and sick Ukrainian men, anthropometry, skinfold thickness.*

Introduction

Alopecia areata (AA) is among the most prevalent autoimmune non-scarring alopecias, marked by abrupt hair loss on the scalp and other body sites and having a tendency to a relapsing course. Based on classic population-based studies and systematic reviews, the estimated lifetime prevalence of AA is about 2 % in the general population, with data from the Rochester Epidemiology Project showing a cumulative incidence of 2.1 %. The global burden of disease attributable to AA is estimated to exceed 1.3 million years lived with disability (DALYs), which highlights the substantial medical and social impact of what may initially appear to be a purely "skin condition" [11, 24, 30].

A meta-analysis by Lee H. H. et al. [11] demonstrated that the prevalence of AA on a worldwide scale is approximately 2.11 % in health-care-based samples, close to 0.75 % in population-based samples, and exceeds 3 % in clinical

samples, which may be influenced by both methodological differences and healthcare-seeking behavior. There has been a noticeable change in prevalence over time, with rates around 1.0 % reported before 2000 and more than 3.2 % after 2009, particularly higher in children than in adults. An earlier systematic review by Villasante Fricke A. C. and Miteva M. [24] underlined, on the one hand, the high worldwide prevalence of AA and, on the other, a wide spectrum of comorbid mental disorders together with reduced quality of life (QoL) in more than 50 % of patients; together, these observations enhance our perception of the burden of AA as a major medical problem. Furthermore, a recent systematic review with a pharmacoeconomic focus demonstrated large differences in estimates: point prevalence of AA in the general population ranged from 0.04 % to 6.7 %, period prevalence (0-5 years) from 0.42 % to 4.95 %, and lifetime prevalence from 2.5% to 13.8 %, which may be explained by heterogeneity in study designs, registries and diagnostic criteria [25].

Recent global model-based research improves our understanding of AA epidemiology, but also reveals substantial discrepancies in the currently available data. In a systematic review and Bayesian hierarchical model-based meta-analysis, Jeon J. J. et al. [9] analyzed 88 studies from 28 countries and noted that recorded incidence is higher among individuals aged 19-50 years, with Asia showing a higher prevalence than Africa. Lifetime prevalence of physician-diagnosed AA has been estimated at approximately 0.10 % in the general population (0.12 % in adults and 0.03 % in children), yet almost half of the regions mapped by the Global Burden of Disease project lack robust epidemiological data. Comparable conclusions regarding an absolute increase in the number of AA cases and AA-related years lived with disability, alongside only marginally fluctuating age-standardized incidence and prevalence rates, were reported by Wang H. et al. [26], consistent with recent analyses of the global burden of AA and related disorders from 1990 to 2021 [30].

Large national studies show distinct ethnic, social and age-related patterns of AA within populations, with the total number of affected individuals reaching many millions worldwide. In the UK, Harries M. et al. [7] reported an overall incidence rate of 0.26 per 1000 person-years and a point prevalence of 0.58 % in adults in primary care in 2018, with increased risks among non-European (particularly Asian) individuals, urban residents and people living in socioeconomically deprived areas, based on a primary-care database of more than 4.1 million individuals. In South Korea, nationwide insurance database studies showed low but gradually increasing prevalence and incidence rates of AA over 2006-2015, with a predominance of limited forms in young adult patients [12]. In Saudi Arabia, a tertiary-centre clinical study found that AA affected 2.3 % of dermatology clinic attendees and showed a predilection for children, with close associations with atopic conditions and other comorbidities [2]. Analysis of a large US dataset of employed, insured individuals demonstrated a rising trend in both prevalence and incidence of AA, alopecia totalis and alopecia universalis among adults and children in recent years, reflecting not only a true increase in case numbers but also improved case detection due to heightened diagnostic awareness [17, 25].

The review by Lintzeri D. A. et al. [15] presents the up-to-date concept of AA as a chronic multifactorial autoimmune disease that represents one of the most common dermatoses, with an estimated lifetime risk of approximately 2 %, and is significantly associated with other autoimmune, atopic, metabolic and psychiatric disorders. In the context of emerging targeted therapies (particularly JAK inhibitors) and growing interest in the systemic metabolic and neuropsychiatric implications of AA, issues related to accurate estimation of its prevalence and risk factors in different populations are becoming increasingly important. At the same time, global modelling work highlights the under-representation of middle- and low-income countries (including those of Eastern Europe) in large epidemiological datasets [7, 9, 26, 30]. This underscores the need for regional studies that not only refine the prevalence of alopecia areata but also clarify its relationship with somatotypological and anthropometric characteristics, particularly the distribution of subcutaneous fat, which forms the rationale for our study on the peculiarities of skinfold thickness in Ukrainian men with alopecia areata.

The aim of the study is to determine the characteristics of skinfold thickness in young Ukrainian men with alopecia areata.

Materials and methods

A clinical and instrumental as well as anthropological examination (in accordance with the recommendations of Shaparenko P. P. [20]) was performed in 81 young adult Ukrainian men (25-44 years according to the WHO age classification, 2015) with alopecia areata. The Committee on Bioethics of National Pirogov Memorial Medical University, Vinnytsya (protocol No. 4 from 18.03.2023) concluded that the study does not contradict the basic bioethical standards of the Declaration of Helsinki, the Council of Europe Convention on Human Rights and Biomedicine (1977), the relevant WHO regulations and the laws of Ukraine.

The diagnosis of alopecia areata was established using an ARAMO ASW 300 (Korea) dermatoscope-trichoscope, which makes it possible to assess hair density, hair thickness, the condition of the cuticle, scalp keratin and scalp capillary vessels. According to the severity of alopecia areata by Shutskiy I. V. [16], the following distribution of male patients was established: 35 patients with grade I severity, 33 patients with grade II severity, and 12 patients with grade III severity.

Skinfold thickness (SFT) on the extremities and trunk was measured with a caliper (mm). The skinfold was firmly grasped between the index finger and thumb, or with three fingers, in such a way that both the skin and the subcutaneous fat layer were included in the fold. The caliper

branches were applied so that the distance from the crest of the fold to the measurement point approximately equaled the thickness of the fold itself.

As a control group, we used SFT indices of 82 apparently healthy Ukrainian men of the same age group, obtained from the database of the Research Center of Vinnytsia National Pirogov Memorial Medical University. Statistical processing of the results was carried out using the licensed software package "Statistica 6.0", applying nonparametric evaluation methods. The mean values and standard deviations were calculated for each variable. The significance of differences between independent quantitative variables was determined using the Mann-Whitney U-test.

Results

It was found that SFT on the posterior surface of the arm in Ukrainian men with alopecia areata overall (8.901±1.751 mm), and in those with grade II (9.182±1.590 mm) and grade III (9.583±1.084 mm) severity, was significantly higher ($p<0.05$-0.01) than in apparently healthy Ukrainian men (7.848±2.914 mm) (Fig. 1A). When comparing this parameter among Ukrainian men with alopecia areata of different severity, significantly lower values ($p<0.05$ in both cases) were found in patients with grade I severity (8.400±1.988 mm) compared with patients with grades II and III severity (see Fig. 1A).

SFT on the anterior surface of the arm in Ukrainian men with alopecia areata, both overall (8.716±1.919 mm) and in patients with different degrees of severity (grade I – 8.229±1.987 mm, grade II – 9.030±1.976 mm, and grade III – 9.333±1.303 mm, respectively), was significantly higher ($p<0.001$ in all cases) than in apparently healthy Ukrainian men (5.592±2.132 mm) (Fig. 1B). When comparing this parameter among Ukrainian men with alopecia areata of different severity, significantly lower values ($p<0.05$ in both cases) were found in patients with grade I severity compared with those with grades II and III severity (see Fig. 1B).

SFT on the forearm in Ukrainian men with alopecia areata, both overall (5.926±1.439 mm) and in patients with different degrees of severity (grade I – 5.657±1.392 mm, grade II – 6.121±1.495 mm, and grade III – 6.167±1.467 mm, respectively), was significantly higher ($p<0.001$ in all cases) than in apparently healthy Ukrainian men (4.173±1.621 mm) (Fig. 1C). When comparing forearm SFT among Ukrainian men with alopecia areata of different severity, no significant differences or even trends toward differences in this parameter were found (see Fig. 1C).

SFT under the inferior angle of the scapula in Ukrainian men with alopecia areata, both overall (9.593±1.745 mm) and in patients with different degrees of severity (grade I – 9.429±1.668 mm, grade II – 9.939±1.983 mm, and grade III – 9.167±1.193 mm, respectively), was significantly lower ($p<0.001$ in all cases) than in apparently healthy Ukrainian men (13.53±3.92 mm) (Fig. 2A). When comparing SFT under the inferior angle of the scapula among Ukrainian men with

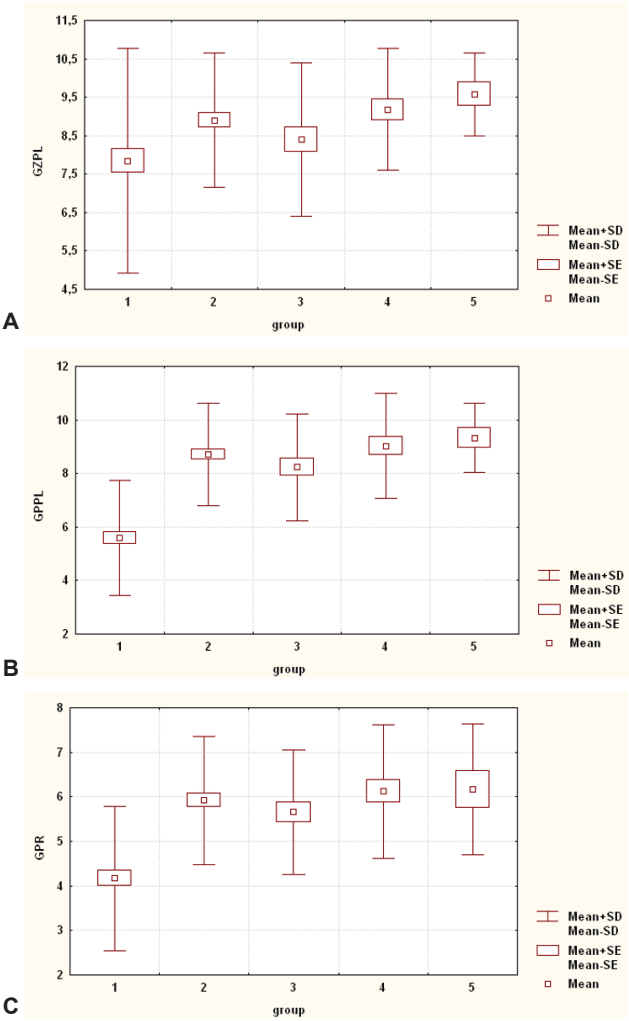


Fig. 1. Features of SFT on the upper limbs in Ukrainian men with alopecia areata of different severity. A – SFT on the posterior surface of the arm (GZPL); B – SFT on the anterior surface of the arm (GPPL); C – SFT on the forearm (GPR). In this and the following figure: 1 – apparently healthy men; 2 – all men with alopecia areata; 3 – men with alopecia areata of grade I severity; 4 – men with alopecia areata of grade II severity; 5 – men with alopecia areata of grade III severity. group – corresponding groups of the examined men; Mean – mean value; Mean±SE – mean value ± standard error of the mean; Mean±SD – mean value ± standard deviation.

alopecia areata of different severity, no significant differences or trends toward differences in this parameter were found (see Fig. 2A).

SFT on the chest in Ukrainian men with alopecia areata, both overall (8.864±1.752 mm) and in patients with different degrees of severity (grade I – 8.400±1.897 mm, grade II – 9.182±1.722 mm, and grade III – 9.250±1.138 mm, respectively), was significantly higher ($p<0.001$ in all cases) than in apparently healthy Ukrainian men (4.924±1.729 mm) (Fig. 2B). When comparing chest SFT among Ukrainian men with alopecia areata of different severity, a trend ($p=0.064$) and a slight trend ($p=0.099$) towards lower values of this parameter

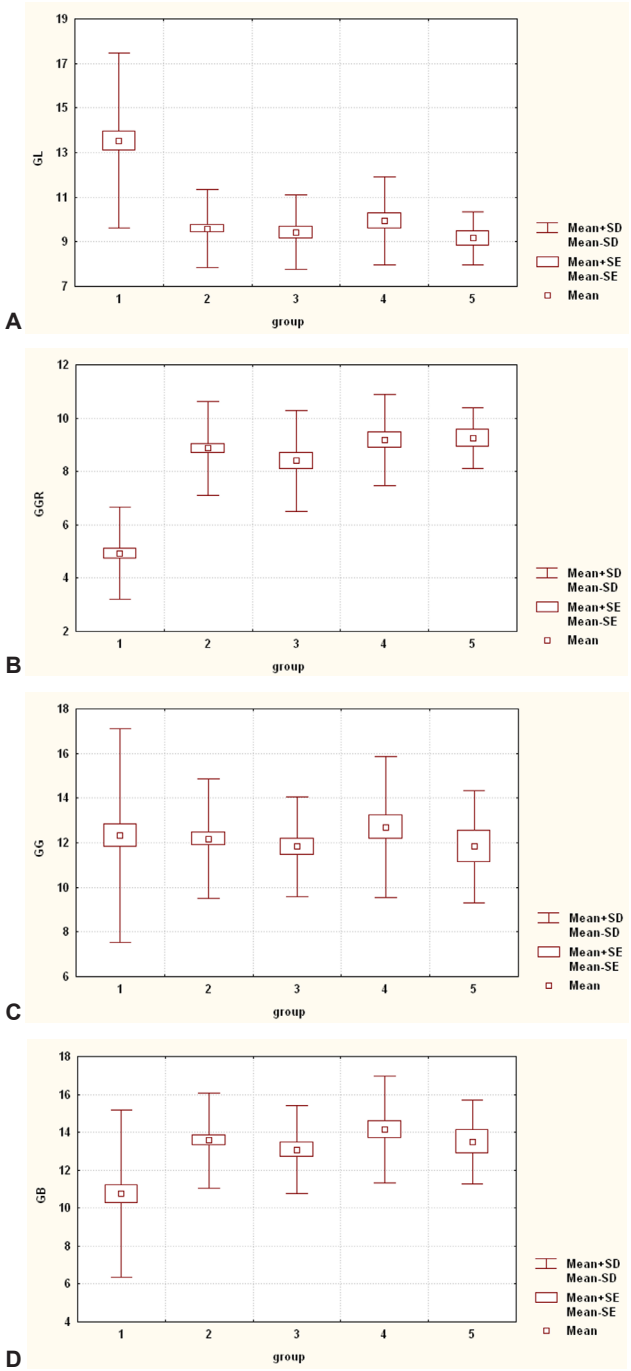


Fig. 2. Features of SFT on the trunk in Ukrainian men with alopecia areata of different severity. **A** – SFT under the inferior angle of the scapula (GL); **B** – SFT on the chest (GGR); **C** – SFT on the abdomen (GG); **D** – SFT on the flank (GB).

was found in patients with grade I severity compared with those with grades II and III severity (see Fig. 2B).

When comparing abdominal SFT between apparently healthy and Ukrainian men with alopecia areata, as well as among patients with different degrees of severity, no significant differences or trends towards differences in this parameter were found (Fig. 2C).

SFT on the flank in Ukrainian men with alopecia areata, both overall (13.57±2.53 mm) and in patients with different degrees of severity (grade I – 13.09±2.33 mm, grade II – 14.15±2.81 mm, and grade III – 13.50±2.20 mm, respectively), was significantly higher (p<0.01-0.001) than in apparently healthy Ukrainian men (10.75±4.41 mm) (Fig. 2D). When comparing flank SFT among Ukrainian men with alopecia areata of different severity, no significant differences or trends towards differences in this parameter were found (see Fig. 2D).

SFT on the thigh in Ukrainian men with alopecia areata, both overall (10.81±1.21 mm) and in patients with different degrees of severity (grade I – 10.69±1.28 mm, grade II – 11.06±1.25 mm, and grade III – 10.58±0.79 mm, respectively), was significantly lower (p<0.05-0.001) than in apparently healthy Ukrainian men (12.80±3.85 mm) (Fig. 3A). When comparing thigh SFT among Ukrainian men with alopecia areata of different severity, no significant differences or trends towards differences in this parameter were found (see Fig. 3A).

SFT on the shin in Ukrainian men with alopecia areata overall (9.111±1.118 mm) and in those with grade II severity (9.273±1.098 mm) showed only slight trends toward higher values (p=0.082 and p=0.088, respectively) compared with apparently healthy Ukrainian men (8.982±2.691 mm) (Fig. 3B). When comparing shin SFT among Ukrainian men with alopecia areata of different severity, no significant differences or trends toward differences in this parameter were found (see Fig. 3B).

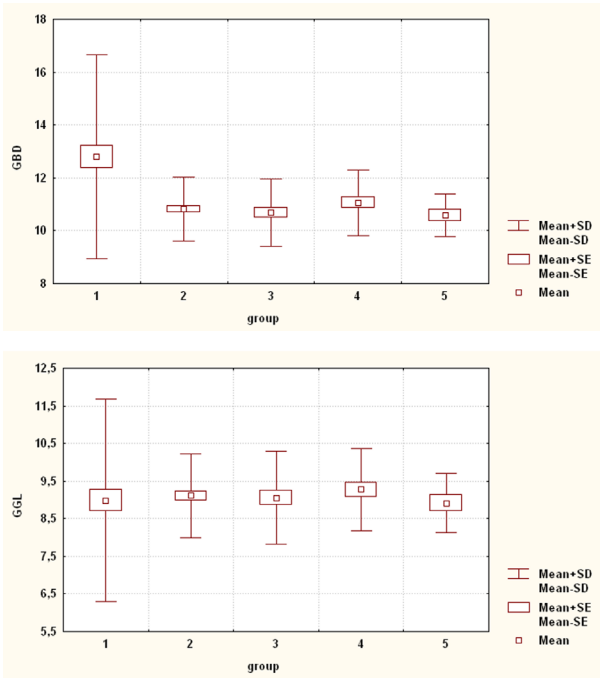


Fig. 3. Features of SFT on the lower limb in Ukrainian men with alopecia areata of different severity. **A** – SFT on the thigh (GBD); **B** – SFT on the shin (GGL).

Discussion

Thus, when comparing SFT between apparently healthy and Ukrainian men with alopecia areata overall and with different degrees of severity, the following was established: significantly higher values ($p<0.05$-0.001) or slight trends toward higher values ($p=0.081$ and $p=0.088$) in patients for SFT on the posterior (by 13.42 %–17.00 %–22.11 %, except in patients with grade I severity) and anterior surface of the arm (by 55.87 %–47.16 %–61.48 %–66.90 %), on the forearm (by 42.01 %–35.56 %–46.68 %–47.78 %), on the shin (only trends of 1.44 % and 3.24 % in patients overall and with grade II severity), on the chest (by 80.02 %–70.59 %–86.47 %–87.86 %), and on the flank (by 26.23 %–21.77 %–31.63 %–25.58 %). At the same time, significantly lower SFT values ($p<0.05$-0.001) were found in patients on the thigh (by 18.41 %–19.74 %–15.73 %–20.98 %) and under the inferior angle of the scapula (by 41.04 %–43.49 %–36.13 %–47.59 %). The oppositely directed changes in SFT on the upper limb and thigh, as well as under the inferior angle of the scapula versus on the chest and flank in Ukrainian men with alopecia areata compared with apparently healthy men, are manifestations of a "subpathological" constitutional type in this disease [18].

When comparing SFT among Ukrainian men with alopecia areata of different severity, only significantly lower values ($p<0.05$) or trends ($p=0.064$ and $p=0.099$) toward lower values were found in patients with grade I severity compared with those with grades II and III severity for SFT on the posterior (by 9.31 % and 14.08 %) and anterior (by 9.73 % and 13.42 %) surfaces of the arm and on the chest (by 9.31 % and 10.12 %).

C. Lie et al. [14] systematic review revealed that AA and AGA are both often related to metabolic syndrome (MetS) components, such as abdominal obesity, arterial hypertension, dyslipidemia and insulin resistance. A meta-analysis and systematic review by Qiu Q. I. U. et al. [29] confirmed these findings using both unadjusted and adjusted estimates: the pooled OR for AGA in the presence of MetS was 3.46 (95 % CI 2.38-5.05; $p<0.001$), and AGA patients had a worse profile with respect to BMI, waist circumference, fasting blood glucose, lipids and blood pressure than individuals without alopecia. A number of primary case–control studies have shown a greater prevalence of MetS and central obesity among men with AGA than in controls. In the investigation by Gopinath H. and Upadya G. M. [5], MetS was noted in 22.4 % of AGA patients compared with 9.4 % of the comparison group ($p=0.021$), i.e. more than twice as often. M. M. Devi et al. [4] found even more striking disparities in an Indian population: MetS was detected in 60 % of AGA patients and 24 % of controls ($p=0.0002$); abdominal obesity by waist circumference was present in 68.4 % versus 18.4 %, and hypertriglyceridaemia in 51 % versus 22 %, respectively.

In the studies by Swaroop et al. M. R. [22], Taheri A. R. et al. [23] and Qureshi H. F. et al. [19], early-onset or severe AGA in men was associated with a significantly higher frequency of MetS, insulin resistance (by HOMA-IR) and elevated blood pressure ($p<0.05$), further supporting the concept of AGA as a marker of cardiometabolic risk. A biochemical study by Hamed A. M. et al. [6] showed that in patients with AGA and MetS, circulating levels of the peptide alarin were significantly higher and correlated with waist circumference, triglycerides and insulin resistance, suggesting the involvement of adipokines in the pathogenic link between obesity and hair loss. At the same time, some studies, such as that by Danesh-Shakiba M. et al. [3], did not confirm clear differences in BMI or waist-to-height ratio between AGA and controls, given similar proportions of individuals with WHtR>0.5, emphasizing that not all anthropometric indices are equally sensitive for risk detection.

The evidence regarding AA as an autoimmune non-scarring type of alopecia is more heterogeneous. In a recent case–control study conducted by Abdollahimajd F. et al. [1], MetS was reported in 11.67 % (7 of 60) of patients with AA versus 6.67 % (4 of 60) in age- and sex-matched control subjects, with no statistically significant difference between the two groups ($p=0.34$). Meanwhile, the authors also demonstrated that MetS was strongly correlated with abdominal circumference (OR 1.10, 95 % CI 1.02-1.19), emphasizing the role of fat distribution rather than BMI alone. Similar results were reported by Singdia H. et al. [21] in north-western India: the prevalence of MetS among cases (7.54 %) and controls (8.47 %) was comparable ($p=1.0$), but all patients with AA who had MetS also had an increased waist circumference, and low HDL-C was the only component observed significantly more frequently in cases than in controls. A Ukrainian study conducted by Horda I. I. and Vozianova S. V. [8] revealed that, among AA patients with MetS, dyslipidemia and insulin resistance were predictors of a more progressive and recurrent course.

Other investigations expand on these findings by focusing on body weight, obesity and prediabetes. In a retrospective study analyzing 257 AA patients, Lee Y. B. and Lee W. S. [13] described the distribution of BMI categories across clinical subtypes and age at onset; they suggested that overweight and obesity are common comorbidities, but could not demonstrate a clear association with AA severity. However, in a large population-based cohort study by Wohl Y. et al. [27] involving 33,401 patients with AA and 66,802 controls, the prevalence of prediabetes (26.3 % vs 18.1 %; OR 1.62) and obesity (17.2 % vs 13 %; OR 1.35) was substantially higher in the patient group; furthermore, individuals with AA aged ≥40 years had approximately a twofold increased risk of developing prediabetes. A prospective cohort of 2.16 million Korean children analyzed by Kim S. R. et al. [10] showed that childhood obesity significantly increases the risk of immune-mediated skin diseases, including AA: a total of 4,878 cases of AA were registered, and the trend of increasing risk with rising BMI was statistically significant ($p<0.01$).

The study by Wróblewska-Kończalik K. et al. [28] did not reveal statistically significant differences in BMI or mean WHtR between patients and controls (0.49 and 0.51, respectively), and the proportion of individuals with

WHtR>0.5 was even higher among controls [28]. There was, however, a high prevalence of vitamin D deficiency (64.86 %) and low ferritin (48.65 %) in the patient group, as well as hypertriglyceridemia (27.2 %), corresponding to the findings of Lie C. et al. [14] on the involvement of dyslipidemia, micronutrient deficiencies and hormonal disturbances in determining the "metabolic phenotype" of alopecic subjects.

Our finding of regional patterns of SFT in young Ukrainian men with AA, characterized by high levels of SFT on the upper limb, chest and flank together with low levels of SFT on the thigh and under the inferior angle of the scapula, fits well into the concept of a "subpathological" constitutional adipose pattern associated with cardiometabolic risk. In contrast to the majority of investigations that report only global indices (BMI, waist circumference, WHtR) and the presence/absence of MetS [14, 19, 22, 23], our study describes in more detail the topography of subcutaneous fatty tissue. The opposite-direction changes in SFT on the upper limb, trunk and thigh may represent early constitutional shifts in fat distribution, consistent with studies of AGA and AA in combination with abdominal obesity, prediabetes, dyslipidemia and vitamin D deficiency [8, 10, 14].

Conclusions

1. The higher SFT values on the upper limb, chest and flank, together with lower SFT values on the thigh and under the inferior angle of the scapula in Ukrainian men with alopecia areata overall and at different degrees of severity compared with apparently healthy men, indicate the presence of a "subpathological" constitutional type in this disease.

2. Among groups of Ukrainian men with alopecia areata of different severity, only isolated differences in SFT were found, predominantly on the upper limb.

References

[1] Abdollahimajd, F., Niknezhad, N., Bahreini, N., Younespour, S., & Namazi, N. (2021). Metabolic syndrome in patients with alopecia areata: a case-control study. *Dermatologic Therapy*, *34*(4), e14979. doi: 10.1111/dth.14979

[2] Alshahrani, A. A., Al-Tuwaijri, R., Abuoliat, Z. A., Alyabsi, M., AlJasser, M. I., & Alkhodair, R. (2020). Prevalence and clinical characteristics of alopecia areata at a tertiary care center in Saudi Arabia. *Dermatology research and practice*, *2020*(1), 7194270. doi: 10.1155/2020/7194270

[3] Danesh-Shakiba, M., Poorolajal, J., & Alirezaei, P. (2020). Androgenetic alopecia: relationship to anthropometric indices, blood pressure and life-style habits. *Clinical, cosmetic and investigational dermatology*, 137-143. doi: 10.2147/CCID.S231940

[4] Devi, M. M., Raju, P. K., Gopal, K. V. T., & Rao, T. N. (2018). Study of prevalence of metabolic syndrome in androgenetic alopecia. *Int J Res Dermatol*, *4*, 522-526. doi: 10.18203/issn.2455-4529.IntJResDermatol20184454

[5] Gopinath, H., & Upadya, G. M. (2016). Metabolic syndrome in androgenic alopecia. *Indian journal of dermatology, venereology and leprology*, *82*, 404-408. doi: 10.4103/0378-6323.174421

[6] Hamed, A. M., Fatah, M. A., & Shams, G. M. (2022). Androgenetic alopecia and metabolic syndrome: is Alarin a missing link?. *The Journal of clinical and aesthetic dermatology*, *15*(7), 32-37. PMID: 35942015

[7] Harries, M., Macbeth, A. E., Holmes, S., Chiu, W. S., Gallardo, W. R., Nijher, M., ... & Messenger, A. G. (2022). The epidemiology of alopecia areata: a population-based cohort study in UK primary care. *British journal of dermatology*, *186*(2), 257-265. doi: 10.1111/bjd.20628

[8] Horda, I. I., & Vozianova, S. V. (2021). Effect of dyslipidaemia and insulin resistance on the course of alopecia areata associated with metabolic syndrome. *Dermatology and venereology,* (1), 18-22. doi: 10.33743/2308-1066-2021-1-18-22

[9] Jeon, J. J., Jung, S. W., Kim, Y. H., Parisi, R., Lee, J. Y., Kim, M. H., ... & Lee, S. (2024). Global, regional and national epidemiology of alopecia areata: a systematic review and modelling study. *British Journal of Dermatology*, *191*(3), 325-335. doi: 10.1093/bjd/ljae058

[10] Kim, S. R., Koh, S. J., & Park, H. (2024). Childhood obesity, weight change, and pediatric immune-mediated skin diseases. *Journal of Investigative Dermatology*, *144*(9), 1975-1984. doi: 10.1016/j.jid.2024.01.037

[11] Lee, H. H., Gwillim, E., Patel, K. R., Hua, T., Rastogi, S., Ibler, E., & Silverberg, J. I. (2020). Epidemiology of alopecia areata, ophiasis, totalis, and universalis: a systematic review and meta-analysis. *Journal of the American Academy of Dermatology*, *82*(3), 675-682. doi: 10.1016/j.jaad.2019.08.032

[12] Lee, J. H., Kim, H. J., Han, K. D., Han, J. H., Bang, C. H., Park, Y. M., ... & Lee, Y. B. (2019). Incidence and prevalence of alopecia areata according to subtype: a nationwide, population-based study in South Korea (2006–2015). *British Journal of Dermatology*, *181*(5), 1092-1093. doi: 10.1111/bjd.18145

[13] Lee, Y. B., & Lee, W. S. (2022). Alopecia areata and body mass index: A retrospective analysis of 257 cases. *Annals of Dermatology*, *34*(4), 305-308. doi: 10.5021/ad.20.084

[14] Lie, C., Liew, C. F., & Oon, H. H. (2018). Alopecia and the metabolic syndrome. *Clinics in dermatology*, *36*(1), 54-61. doi: 10.1016/j.clindermatol.2017.09.009

[15] Lintzeri, D. A., Constantinou, A., Hillmann, K., Ghoreschi, K., Vogt, A., & Blume-Peytavi, U. (2022). Alopecia areata–Current understanding and management. *JDDG: Journal der Deutschen Dermatologischen Gesellschaft, 20*(1), 59-90. doi: 10.1111/ddg.14689

[16] Mavrov, I. I., Bolotnaia, L. A., & Serbyna, I. M. (2007). *Основы диагностики и лечения в дерматологии и венерологи: руководство для врачей, интернов, студентов* [*Basics of diagnostics and treatment in dermatology and venereology: a guide for doctors, interns, students*]. Харьков: Факт=Kharkiv: Fact.

[17] Mostaghimi, A., Gao, W., Ray, M., Bartolome, L., Wang, T., Carley, C., ... & Swallow, E. (2023). Trends in prevalence and incidence of alopecia areata, alopecia totalis, and alopecia universalis among adults and children in a US employer-sponsored insured population. *JAMA dermatology*, *159*(4), 411-418. doi: 10.1001/jamadermatol.2023.0002

[18] Nykytiuk, B. A., Moroz, V. M., & Nykytiuk, D. B. (1998). *Теория и практика интегративной антропологии. Очерки* [*Theory and Practice of Integrative Anthropology. Essays*]. Киев-Винница: Здоров'я=Kyiv-Vinnitsa: Zdorovia.

[19] Qureshi, H. F., Akhtar, A., Kakar, A., Sakina, S., Irum, S., & Nasr, N. (2024). Association of Androgenetic Alopecia with Metabolic Syndrome. *Journal of the College of Physicians and Surgeons--Pakistan: JCPSP*, *34*(10), 1245-1248.

doi: 10.29271/jcpsp.2024.10.1245
[20] Shaparenko, P. P. (2000). Антропометрія [*Anthropometry*]. Вінниця: ВДМУ ім. М. І. Пирогова=Vinnytsia: VDMU im. M. I. Pyrogova.
[21] Singdia, H., Bhargava, P., Nijhawan, S., & Mathur, D. K. (2023). A Study of Correlation of Alopecia Areata and Metabolic Syndrome in Northwest Indian Population: A Case–Control Study. *International Journal of Trichology*, *15*(2), 63-69. doi: 10.4103/ijt.ijt_89_21
[22] Swaroop, M. R., Kumar, B. M., Sathyanarayana, B. D., Yogesh, D., Raghavendra, J. C., & Kumari, P. (2019). The association of metabolic syndrome and insulin resistance in early-onset androgenetic alopecia in males: A case–control study. *Indian journal of dermatology*, *64*(1), 23-27. doi: 10.4103/ijd.IJD_724_16
[23] Taheri, A. R., Afkhamizadeh, M., Sabourirad, S., Hassani, O., & Ghanizadeh, S. (2020). The association of androgenetic alopecia with metabolic syndrome: a case control study on Iranian population. *Iranian Journal of Dermatology*, *22*(4), 129-132. doi: 10.22034/ijd.2020.104819
[24] Villasante Fricke, A. C., & Miteva, M. (2015). Epidemiology and burden of alopecia areata: a systematic review. *Clinical, cosmetic and investigational dermatology*, 397-403. doi: 10.2147/CCID.S53985
[25] Vu, B. K., Tuson, H., Harricharan, S., Law, E., Wosik, K., Tran, H., ... & Neary, M. P. (2022). EPH57 Epidemiology of Alopecia Areata Across Global Regions–A Systematic Literature Review. *Value in Health*, *25*(12), S202. doi: 10.1016/j.jval.2022.09.979
[26] Wang, H., Pan, L., & Wu, Y. (2022). Epidemiological trends in alopecia areata at the global, regional, and national levels. *Frontiers in immunology*, *13*, 874677. doi: 10.3389/fimmu.2022.874677
[27] Wohl, Y., Mashiah, J., Noy, O., Drutin, Y., Vered, S., & Ben-Tov, A. (2025). Alopecia Areata Is Associated with an Increased Risk for Prediabetes and Obesity: A Nationwide Case–Control Study. *Journal of Personalized Medicine*, *15*(1), 16. doi: 10.3390/jpm15010016
[28] Wróblewska-Kończalik, K., Pawlaczyk, M., Kolasiński, J., Kolenda, M., Miechowicz, I., Seraszek-Jaros, A., ... & Gornowicz-Porowska, J. (2024). Non-cicatricial alopecia and its association with anthropometric measurements and nutritional laboratory markers. *Life*, *14*(5), 609. doi: 10.3390/life14050609
[29] Yueqi, Q. I. U., Xingyu, Z. H. O. U., Siqi, F. U., Shuaihantian, L. U. O., & Yaping, L. I. (2022). Systematic review and meta-analysis of the association between metabolic syndrome and androgenetic alopecia. *Acta dermato-venereologica*, *102*, 1012. doi: 10.2340/actadv.v101.1012
[30] Zhou, J., Liang, L., Zhang, H., Liu, M., Zhu, Z., Leng, L., & Li, J. (2025). Global burden of alopecia areata and associated diseases: a trend analysis from 1990 to 2021. *Journal of cosmetic dermatology*, *24*(3), e70076. doi: 10.1111/jocd.70076

ОСОБЛИВОСТІ ТОВЩИНИ ШКІРНО-ЖИРОВИХ СКЛАДОК У ХВОРИХ НА ГНІЗДОВУ АЛОПЕЦІЮ УКРАЇНСЬКИХ ЧОЛОВІКІВ

Шакатіра М. А. М., Дмитренко С. В., Прокопенко С. В., Голубовський І. А., Гончар О. О., Зверховська В. Ф., Кисельова Т. М.
Гніздову алопецію розглядають не лише як ізольоване дерматологічне захворювання, але й як потенційний маркер системних порушень, зокрема змін розподілу жирової тканини в організмі та метаболічного ризику. Аналіз товщини шкірно-жирових складок у чоловіків з гніздовою алопецією в Україні дає змогу розширити розуміння патогенетичних механізмів цього захворювання та поглибити підходи до його ранньої діагностики й індивідуалізованої терапії. Мета дослідження – встановлення особливостей товщини шкірно-жирових складок (ТШЖС) у хворих на гніздову алопецію українських чоловіків молодого віку. Проведено клініко-інструментальне (за допомогою дерматоскопу-трихоскопу ARAMO ASW 300) та антропологічне (визначення ТШЖС у відповідності до рекомендацій Шапаренка П. П.) обстеження 81 хворих на гніздову алопецію українських чоловіків молодого віку. Визначення тяжкості гніздової алопеції проводили за Шуцьким І. В. В якості контрольної групи використані показники ТШЖС 82 практично здорових українських чоловіків аналогічної вікової групи з банку даних науково-дослідного центру Вінницького національного медичного університету ім. М. І. Пирогова. Статистична обробка отриманих результатів проведена у ліцензійному пакеті «Statistica 6.0» з використанням непараметричних методів оцінки. Встановлені достовірно більші значення у хворих на гніздову алопецію українських чоловіків загалом і різного ступеня тяжкості, ніж у практично здорових чоловіків, ТШЖС на задній (на 13,42-22,11 %), передній поверхні плеча (на 47,16-66,90 %), на передпліччі (на 35,56-47,78 %), на грудях (на 70,59-87,86 %) і на боку (на 21,77-31,63 %) та достовірно менші значення ТШЖС на стегні (на 15,73-20,98 %) і під нижнім кутом лопатки (на 36,13-47,59 %). Між групами хворих на гніздову алопецію з різним ступенем тяжкості українських чоловіків встановлені лише достовірно менші значення ТШЖС на задній (на 9,31 % і 14,08 %) і передній (на 9,73 % і 13,42 %) поверхні плеча у хворих 1-го ступеня тяжкості порівняно з хворими 2-го та 3-го ступеня тяжкості. Встановлена різнонаправленість змін ТШЖС на верхній кінцівці та стегні, а також під нижнім кутом лопакти та на грудях і боку у хворих на гніздову алопецію українських чоловіків загалом і різного ступеня тяжкості є проявами «субпатологічного» конституціонального типу при даному захворюванні.
Ключові слова: *шкірні захворювання, гніздова алопеція, практично здорові та хворі українськи чоловіки, антропометрія, товщина шкірно-жирових складок.*

Author's contribution
Shakatira M. A. M. – research, data visualization, methodology and writing of the original draft.
Dmytrenko S. V. – conceptualization, project administration.
Prokopenko S. V. – formal analysis and validation.
Golubovsky I. A. – review writing and editing.
Gonchar O. O. – review writing and editing.
Zverkhovska V. F. – software.
Kyselova T. M. – supervision.