Material and Methods

The study was conducted over a period of one and a half years from March 2015 to September 2016 in the Departments of Dermatology and Venereology, and Pathology, All India Institute of Medical Sciences, New Delhi. It was a cross-sectional descriptive and analytical study. Ethical clearance was obtained from the institutional ethics committee.

Cases of AGA and AA diagnosed clinically by two dermatologists (S.K., D.Y.) after thorough history taking, clinical examination and dermoscopy were included and biopsied. Control biopsies of size 4 mm were taken from the uninvolved occipital area of the scalp (safe zone) of men with AGA who consented to an additional biopsy. Patients less than 18 years of age, under treatment for alopecia or with active scalp infection were excluded from the study. A 4-mm punch skin biopsy was taken from the edge of the alopecic patch. This biopsy specimen was embedded in paraffin with the epidermal side facing upwards, which was then progressively sectioned from the epidermal end downwards until the whole specimen was exhausted. Thus, from each biopsy, 8 sections of 5 μm thickness were prepared, thereby representing all parts of the hair follicle at different depths. Haematoxylin-eosin staining was used.

The slides were read by two dermatopathologists independently, who were blinded to the clinical information.

Various histological features were assessed and recorded. Quantitative parameters included total number of hair follicles, number of terminal hair and vellus hair, terminal:vellus hair ratio, anagen hair, non-anagen hair (catagen/telogen), anagen:non-anagen hair ratio and vascular stelae. Qualitative or morphological features included presence of vascular stelae,

peribulbar inflammation, pigment casts or melanin deposits and perifollicular inflammation. Any other findings were also noted.

The vellus hair follicle was defined as one where the diameter of the hair shaft is less than or equal to the width of the inner root sheath.

Statistical Analysis

Data were analysed using Stata 12.0 software (Stata Corp. LP, TX, USA) and represented as frequency (percentage) and median (minimum to maximum). To assess the statistical significance of differences in frequency of qualitative histopathological features (categorical variables) between groups, Fisher's exact test was used. For quantitative histopathological features (continuous variables), statistical significance was assessed amongst all groups using the Kruskal-Wallis test, followed by the Wilcoxon rank sum test for intergroup analysis with Bonferroni correction. The p value <0.05 was significant.