

IFN γ /IL-17 cytokine milieu is characteristic of papulopustular rosacea

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Rosacea is a common chronic inflammatory skin condition typically occurring on sebaceous gland rich (SGR) skin areas; its pathophysiology is quite complex and poorly understood.

We sought to investigate and compare the innate and adaptive immune cell components and cytokine profile of papulopustular rosacea (PPR) and SGR skin. 10 PPR and 10 healthy SGR skin biopsies were gained which were used for immunohistochemistry to detect CD3⁺ / CD4⁺ T cells, CD11c⁺ dermal myeloid DCs, CD1a⁺ Langerhans cells, CD163⁺ / Factor XIII⁺ macrophages. Immunostaining of cytokines mainly but not exclusively characteristic of T cells, namely IL-10, IL-13, IL-17 and IFN γ was also carried out. May-Grünwald-Giemsa (MGG) routine staining was also performed to compare the number of eosinophils, neutrophils and mast cells. Cell counts were quantified by Panoramic Viewer software. Biopsies were also used to measure IL-10, IL-13, IL-17 and IFN γ gene expression by qPCR. In PPR samples infiltrating DCs, T cells and macrophages were detected in significantly higher numbers compared to SGR skin. The number of Langerhans cells showed no difference. MGG staining revealed that several neutrophils were present in PPR samples, but similar to SGR skin eosinophils were missing. Cell count of mast cells was elevated compared to SGR skin. Cytokine milieu of PPR skin represented significantly elevated number of IL-10⁺ and IL-17⁺ cells compared to SGR skin samples and strong IFN γ positivity also turned up. The gene expression pattern of the cytokines corresponded to our results on protein levels. In conclusion inflammatory IFN γ /IL-17 cytokine milieu could be a crucial factor in the pathogenesis of PPR.