**T-cells in the anal mucosa of men with HSIL**

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**Introduction**

T-cell lymphocytic aggregates in anal high-grade squamous intraepithelial lesions (HSIL) have not been previously described.

**Methods**

SPANC is a natural history study of anal SIL in gay men ≥35 years where participants have anal swabs for cytology & HPV DNA testing and high-resolution anoscopy with biopsy of visually abnormal lesions at five visits over three years.

In a subset of 26 men with HSIL on cytology or histology at study entry, their anal biopsies at a subsequent visit (n = 44) were dual immunostained for CD4+ and CD8+ cells using the following protocol.

**Results**

- 24 (55%) biopsies had lymphocytic aggregates on H&E
- Biopsies with lymphocytic aggregates had higher total T-cell densities compared to those without (mean 294 vs 141 cells/mm², P=0.01)

**Discussion**

- Mean CD4+ T-cell density was 2.8 fold greater (P<0.01) in these aggregates but CD8+ T-cell density was only 1.7 fold greater (P=0.08)
- 26 (59%) biopsies had histological HSIL (AIN2 or 3)
- Higher total T-cell density was significantly associated with:
  - HSIL histology (OR 11.80, 95% CI 1.51 – 92.08, P=0.02) compared to biopsies without HSIL histology; and
  - Presence of anal HPV16 (OR 14.08, 95% CI 1.15 – 172.71, P=0.04) compared to absence of anal HPV16
- There was no association between presence of anal low-risk HPV types and total T-cell density

**Conclusion**

CD4+ T-cell enriched lymphoid aggregates are common in the anal mucosa of men with HSIL, and are associated with histological HSIL diagnosis and presence of anal HPV16. These immune cells may play a role in the natural history of anal HSIL and cancer.

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