

## **Do Haematological Laboratory Data Associate with Tumour Size, Cavernous Sinus Invasion, and Sellar Erosion in Patients with Pituitary Adenoma?**

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### **Abstract**

**Background:** Pituitary adenomas (PAs) are the most prevalent neuroendocrine tumour. Inflammation, both within the tumour microenvironment and systemically, plays a role in tumour biology. Haematological laboratory data serves as an initial and cost-effective approach. This study explores the association between haematological indices (e.g., NLR, PLR, LMR) and PA characteristics (tumour size, sellar erosion, cavernous sinus invasion). **Methods:** A retrospective study (2018–January 2023) analyzed preoperative haematological data (such as neutrophil to lymphocyte ratio [NLR], platelet to lymphocyte ratio [PLR], and lymphocyte to monocyte ratio [LMR]) from PA patients. The haematological data was analysed based on tumour characteristic with  $p < 0.05$  considered significant. **Results:** Among 64 patients (mean age  $45.55 \pm 14.67$ ), 20–40% had elevated NLR, PLR, and LMR. Tumour characteristics included 60.9% macroadenomas and 39.1% giant PAs, with 43.8% showing sellar erosion and 42.2% cavernous sinus invasion. Monocyte counts were significantly higher in giant PAs vs. macroadenomas ( $7.48 \pm 1.91$  vs.  $6.49 \pm 1.95$ ,  $p = 0.040$ ), and platelet counts were higher in sellar erosion vs. enlargement ( $336,710 \pm 90,460$  vs.  $284,720 \pm 89,766$ ,  $p = 0.016$ ). **Conclusion:** Our study found that patients with giant PAs had significantly higher monocyte counts.

**Keywords:** Pituitary adenoma, systemic inflammation index, monocyte, tumour size