





# Is unprovoked pulmonary embolism a red flag for occult malignancy?

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**Introduction:** Data on the association between unprovoked pulmonary embolism (PE) and subsequent diagnosis of occult malignancy remain limited and heterogeneous. Whether an unprovoked thromboembolic event should be considered a clinical warning sign for underlying cancer is still debated.<sup>1,2</sup>

**Patients and Methods:** We conducted a prospective observational study based on a pulmonary embolism registry from two tertiary care centers, covering the period December 2013 to December 2024. Patients with an index PE were included, while those with active cancer at baseline or a history of malignancy were excluded. Participants were classified into two groups: unprovoked PE (UPE) and non-malignancy-provoked PE (NMPE). The primary aim was to compare the incidence of newly diagnosed malignancies during follow-up between groups, with prespecified subgroup analyses according to age and sex.

**Results:** A total of 656 patients were enrolled (median age 73 years [IQR 60–80], 56.4% female). During a median follow-up of 3.3 years [IQR 0.9–6.3], malignancy was diagnosed in 11/193 (5.7%) in the UPE group and 19/463 (4.1%) in the NMPE group, a difference that was not statistically significant (OR 1.41, 95% CI 0.66–3.03). Age-stratified analysis revealed a significantly higher cancer incidence among patients >60 years with UPE (OR 2.41, 95% CI 1.09–5.31). This association was most pronounced in women over 60 years, where the risk of subsequent malignancy was nearly fourfold higher (OR 3.89, 95% CI 1.29–11.7).

**Conclusion:** In the overall population, UPE was not associated with an increased incidence of malignancy compared with NMPE. However, older women with UPE demonstrated a markedly higher risk, suggesting that this subgroup may benefit from closer clinical follow-up. Further research is warranted to confirm these observations.

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## LITERATURE

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