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Summary

THE ASSISTANT EFFECT OF ARTIFICIAL INTELLIGENCE TO DETECT SUPERFICIAL ESOPHAGEAL SQUAMOUS CELL CARCINOMA FOR GASTROINTESTINAL ENDOSCOPIST'S DIAGNOSIS

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Oesophagus

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An AI model developed for detecting superficial esophageal squamous cell carcinoma using narrow band imaging videos significantly improved endoscopists' diagnostic sensitivity and accuracy when used as an assistive tool, regardless of endoscopist experience level.

KEY POINTS

- The AI model achieved 76.0% sensitivity, 79.4% specificity, and 77.2% accuracy when tested on 115 endoscopic video cases (52 with lesions, 63 without).
- With AI assistance, 18 endoscopists showed significant improvement in sensitivity (57.4% to 66.5%, $P<0.05$) and accuracy (68.6% to 75.9%, $P<0.05$), with no reduction in specificity (87.0% to 91.6%, $P=0.059$).
- Expert endoscopists demonstrated significant gains in sensitivity (59.1% to 70.0%, $P<0.05$) and accuracy (72.1% to 79.3%, $P<0.05$) with AI assistance.
- Non-expert endoscopists showed significant accuracy improvement (65.8% to 73.3%, $P<0.05$) and trends toward better sensitivity and specificity with AI support.
- Interobserver agreement among endoscopists improved with AI assistance ($\kappa=0.429$ to $\kappa=0.547$), suggesting the AI model may help standardize diagnostic performance in clinical practice.

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