EVALUATION FOR DISEASE SURVEILLANCE OF PRIMARY SMALL-BOWEL FOLLICULAR LYMPHOMA IN CAPSULE ENDOSCOPY IMAGES BASED ON A DEEP CONVOLUTIONAL NEURAL NETWORK: A PILOT STUDY

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A deep convolutional neural network system trained on capsule endoscopy images achieved 88% concordance with physician evaluation in monitoring disease surveillance of primary small-bowel follicular lymphoma.

KEY POINTS

- The CNN system and two physicians showed similar evaluations in 23 of 26 cases (88%) for patients managed with watch-and-wait or chemotherapy.
- Among 18 watch-and-wait cases, physicians rated 78% as stable and 22% as aggravated; the CNN system rated 72% as stable, 22% as aggravated, and 6% as improved.
- Among 8 chemotherapy-treated cases, physicians rated 88% as improved and 12% as stable; the CNN system rated 63% as improved, 25% as stable, and 12% as aggravated.
- Discrepancies between physician and CNN evaluations occurred in 3 of 26 cases (12%) and were attributed to poor small-bowel cleansing level.
- The CNN system was considered useful for disease surveillance under conditions of excellent small-bowel cleansing level.

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