Detection of polyp from colonoscopic images

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ABSTRACT

This paper presents a method for automatic recognition and detection of polyp from colonoscopy images. Polyp is believed to be an early sign of carcinoma in large intestine, which is highly possible to be transformed into malignant tumor in the near future. The goal of this investigation is to detect existing polyps in real-time during colonoscopy examination. With the assistance of image analysis techniques, the system is expected to be able to detect polyps for warning the surgeons to inspect the suspected regions more carefully. In this paper, the captured endoscopic color images are first converted into grey-level images. And then Canny Filter is used to make edge and contour detection for image analysis of polyp recognition. For a region containing polyps, bulges appeared in the contour are always observed where the curvatures are significantly higher than the normal regions. Before calculating the mean curvature between two zero-crossing points of a contour, the curvature scale space (CSS) technique is applied to smooth the curves. The experimental results show that the method used in this paper can detect most of the polyps in columnorectal areas. In the future, a real-time image analysis system will be designed to assist the clinical surgeons to detect polyps. It is expected to be able to eliminate mistakes caused by tiredness and lack of concentration of the doctors. In addition, the detection of abnormal capillary plexus patterns will also be investigated for early detection of tissue dystrophy and cancers.

Keywords : Polyp, Colonoscopy, Endoscope, Image Analysis

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