

Can Artificial Intelligence be as Effective in the Treatment of Anal Fistula as in Colorectal Surgery?

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Dear Editor,

I read with interest the study entitled “Artificial Intelligence in Pre-operative Assessment of Patients in Colorectal Surgery” by Ng et al.¹ The number of artificial intelligence-based studies in the field of colorectal surgery has been increasing in recent years. The size, number, location of polyps detected in preoperative colonoscopic examinations, laboratory findings of the patient and abdominal imaging were evaluated together with the effect of artificial intelligence (AI).² With these data, studies have been conducted to predict whether postoperative complications (surgical site infection, anastomotic leakage, etc.), local recurrence or metastasis will develop in patients, and the length of disease-free survival in patients.^{2,3} However, AI-based studies are very limited in terms of anal fistula (AF) surgery. AF is defined as a pathological epithelial pathway that connects the perianal surface with the anal canal or rectum.⁴ AF, which is often considered the chronic stage of a perianal abscess, is a disease that may reduce the quality of life of affected patients.⁵ Fistulectomy, seton or hybrid seton placement, fistulotomy, use of bioabsorbable materials such as an AF plug, platelet-rich plasma or fibrin glue, flap surgery, ligation of intersphincteric fistula, video-assisted AF treatment, and AF laser closure are the different methods which are generally used in the treatment of AF.⁶⁻⁸ Despite improvements in imaging and technological methods, there is no definitive treatment method for this chronic disease, which can recur. Previous studies have shown that multiple fistula tract, fistula type (such as high transsphincteric or horseshoe fistula), poor drainage, incorrect seton application, incorrect

preoperative fistula mapping, gender, obesity, smoking, and diabetes mellitus play a role in the recurrence of AF.^{9,10} There are imaging-weighted, studies including modalities such as magnetic resonance imaging 3D modeling, endoanal ultrasonography, and three-dimensional endoanal ultrasound which have investigated the utility of these modalities in the correct preoperative diagnosis of AF.^{3,5} However, there is no effective laboratory, imaging, or predictive tool or method to predict which patients will develop postoperative complications (surgical site infection, perineal sepsis, fecal incontinence) and relapse during follow-up in patients operated for AF.^{9,10} An AI-based study, combining preoperative imaging, laboratory and patient risk factors in those who will undergo surgery for AF, with the pre-operative modeling to be created, have the potential to provide a predictor of postoperative complications, an estimated recurrence, and surgical recovery rate, as in the AI-based studies in colorectal surgery. By specifying an estimated surgical cure rate according to these preoperative prediction models and risk classification, patients can be informed about treatment by the surgeon. By analyzing these determined rates and the modifiable risk factors for known complications and recurrence for the patient groups in the postoperative or follow-up period, it would be possible to provide high-volume treatment of patients in centers experienced in the field of proctology. This may lead to a decrease in the complication and recurrence rate, with an attendant improvement in the quality of life of the patients and an increased chance of successful treatment.



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