

CASE REPORT

Complications after polypectomy in a patient with immune thrombocytopenia: A case report

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Abstract

With the increasing rate of colonoscopy, the detection and endoscopic removal of colorectal polyps have become increasingly common. However, for certain special patients, particularly those with immune thrombocytopenia (ITP) who lack a detailed medical history and have not been definitively diagnosed, performing endoscopic polypectomy during colonoscopy can lead to severe post-operative bleeding. This article presents a case where a patient, who denied having any special medical history and had no history of anticoagulant or non-steroidal drug use, experienced uncontrollable bleeding after polypectomy. Understanding such incidents is crucial for implementing preventive measures to reduce future occurrences. In this case, emphasis was placed on enhancing the regional integration of electronic medical record systems and the sharing of diagnostic data, as well as adopting a stratified risk management strategy for polypectomy in patients with ITP and conducting standardized pre-colonoscopy examinations for patients at potential risk of polyps. These measures aim to reduce operational risks and improve the quality of medical safety.

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1. Background

With the annual rise in colorectal cancer incidence, colonoscopy, as the gold standard for early screening and diagnosis, has become increasingly important and widely used. According to statistics, millions of people worldwide undergo colonoscopies each year, with colorectal polyps discovered in about 30% of patients during these procedures. Endoscopic polypectomy, including techniques such as cold snare excision and thermal coagulation, is essential for preventing polyp malignancy and reducing colorectal cancer incidence. However, despite advancements in endoscopic technology and the promotion of standardized procedures,^{1,2} post-operative bleeding remains a significant complication, occurring in approximately 0.5–3% of cases.³

For some special cases, particularly those with undiagnosed immune thrombocytopenia (ITP), the risk of bleeding after endoscopic treatment is significantly higher.⁴ ITP is an autoimmune disorder characterized by increased platelet destruction and reduced production, leading to a platelet count below normal levels ($<100 \times 10^9/L$), which results in coagulation disorders. Because ITP patients often lack typical bleeding

symptoms or a history of the disease,⁵ they are often overlooked before surgery, presenting with increased risk of uncontrollable bleeding post-surgery, which can be life-threatening in severe cases. Studies show that the risk of bleeding in ITP patients after endoscopic treatment is 3–5 times higher than in the general population, with most bleeding events occurring within 24–72 h post-surgery, posing significant challenges for clinical management.

2. Case presentation

A 50-year-old female patient visited our department for a colonoscopy due to abdominal discomfort. During the examination, we thoroughly inquired about her medical history. She denied any prior special diseases or the use of anticoagulants or non-steroidal anti-inflammatory drugs. She also denied recent gum or nasal bleeding and had no history of purpura. Considering local economic conditions and her poor compliance, the medical history was generally not detailed. For patients under 65 years old, a colonoscopy usually reveals polyps. Without routine blood tests and coagulation-related laboratory tests, endoscopic resection of the colon polyp is typically performed. Pre-operative vital signs were: pulse 80/m, breathing rate 12/m, blood pressure 123/85 mmHg. During the colonoscopy, a polypoid mass about 0.5 cm was found in the rectum. After inquiring with the patient, she agreed to undergo endoscopic resection. However, during the procedure, continuous bleeding occurred at the site of the endoscopic mucosal resection. Despite multiple electrocoagulations and several titanium clips being placed to stop the bleeding, there was still a small amount of oozing. The estimated intraoperative blood loss was approximately 20–30 mL (Figure 1). Postoperatively, blood tests showed severe thrombocytopenia (platelet count: $30 \times 10^9/L$). Immediately after admission, the patient was fasting and given phenylmercuric ethyl ether for intravenous infusion to stop the bleeding. Subsequent comprehensive examinations diagnosed ITP. After the surgery, repeated inquiries into her medical history revealed that she had recently experienced minor gum bleeding. Four years ago, a routine blood test at a local county hospital indicated low platelet levels, but further treatment and diagnosis were not pursued, and the specific report was lost. On the 2nd day after surgery, the patient still had a small amount of bloody stool and continued to use hemostatic drugs. After a consultation with the hematology department, it was decided to administer intravenous immunoglobulin (IVIG) at a dose of 1 g/kg/day for 2 days, combined with intravenous dexamethasone (a glucocorticoid) at a dose of 40 mg/day for 4 days.¹¹ On the 4th day, the occult blood in the stool was negative, and on the 6th day, the platelet count stabilized

at $80 \times 10^9/L$.¹² The patient reported no discomfort and was discharged smoothly.

3. Discussion

3.1. Popularization of electronic medical records and mutual recognition of examination results

The widespread adoption of electronic medical record systems and the mutual recognition of examination results across regions have become crucial measures to enhance medical quality and safety. However, in this case, the patient's inability to provide detailed past medical history and examination reports led to the failure to detect thrombocytopenia (ITP) before surgery, resulting in uncontrollable bleeding postoperatively. This situation highlights the inadequacies of the current medical information sharing mechanisms, particularly in cross-regional and inter-institutional settings, where patients' historical medical data are often not promptly accessible, thereby increasing medical risks.

3.1.1. Regional integration of electronic medical record systems

The regional integration of electronic medical record systems enables seamless access to patients' medical information⁶, ensuring that doctors have a comprehensive understanding of the patient's medical history, laboratory test results, and treatment records before surgery. For ITP patients, if their historical data on abnormal platelet counts can be accessed through the electronic medical record system before surgery, doctors can conduct risk assessments in advance and implement preventive measures, thereby preventing serious complications such as post-operative bleeding. In addition, the regional integrated electronic medical record system can use intelligent reminder functions to prompt doctors to perform targeted hematological screenings for high-risk patients, further reducing the rate of missed diagnoses.

3.1.2. A mechanism for mutual recognition of inspection results

The mutual recognition of examination results is a crucial method to enhance medical efficiency and reduce redundant tests.⁶ In this case, the patient was diagnosed with thrombocytopenia 4 years ago at another hospital. However, due to the loss of the report and lack of further treatment, ITP was not detected in time before the surgery. If a comprehensive mechanism for recognizing examination results is established, the patient's past examination data can be retrieved in real-time through the electronic medical record system. This would allow doctors to clearly understand the patient's history of thrombocytopenia before the surgery and take appropriate

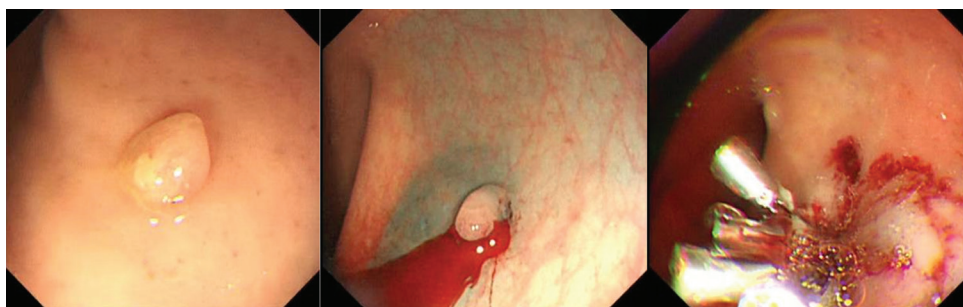


Figure 1. Bleeding after polyp removal

preventive measures. This approach not only reduces the patient's medical burden but also enhances the precision and safety of the treatment.⁸

3.1.3. Challenges and countermeasures for data sharing

Despite the significant advantages of electronic medical records and mutual recognition of examination results, numerous challenges remain in their practical implementation. First, the information systems of different healthcare institutions may have inconsistent technical standards and data formats, making information sharing difficult. Second, patient privacy protection and data security must be given due attention. To address these challenges, it is recommended to focus on the following areas: (i) Standardization: Promote the standardization of information systems among healthcare institutions, unify data formats and interface standards, and ensure seamless information integration; (ii) Privacy protection: Enhance data encryption and access control to ensure the security of patient information during sharing; (iii) Policy support: The government should introduce policies to encourage and regulate the regional integration of electronic medical record systems and the mutual recognition of examination results, providing institutional support for the sharing of medical information.

3.2. Specific management strategies for polypectomy under colonoscopy in ITP patients

For ITP patients undergoing colonoscopy for polypectomy, due to their specific conditions of thrombocytopenia and coagulation disorders, conventional endoscopic procedures and post-operative management may not be sufficient to manage the high risk of bleeding. Therefore, a specialized management strategy for ITP patients is necessary, covering pre-operative, intraoperative, and post-operative stages, to minimize the risk of bleeding and ensure patient safety.¹³

3.2.1. Pre-operative management

For known or suspected ITP patients, platelet count, coagulation function, and bleeding risk should be

further evaluated before surgery, and hematological consultation should be requested, if necessary, to develop an individualized pre-operative preparation plan.

For patients with ITP and a platelet count below $50 \times 10^9/L$, it is recommended to rapidly increase the platelet count to a safe level (typically $>50 \times 10^9/L$) before surgery through IVIG or glucocorticoids (such as dexamethasone). For elective surgery patients, long-term platelet count management using thrombopoietin receptor agonists (TPO-RA) can be considered to reduce the risk of bleeding during and after surgery.

3.2.2. Intraoperative management

Intraoperative management of complications in patients with ITP can be classified into two main approaches:

- (i) Combined application of various hemostatic techniques. During the procedure, a combination of various hemostatic techniques should be employed,⁹ such as local adrenaline injection, thermal coagulation, and titanium clip ligation, to minimize the risk of bleeding at the surgical site. For larger or strategically located polyps, fractional excision or more precise techniques like endoscopic submucosal dissection can be considered to reduce the risk of bleeding from a single excision.¹⁰
- (ii) Intraoperative monitoring and emergency plan. During the operation, the patient's vital signs and wound bleeding should be closely monitored. Once uncontrollable bleeding is found, the emergency plan should be immediately initiated, including rapid platelet infusion, use of hemostatic drugs (such as tranexamic acid), and assistance from multidisciplinary teams (such as hematology and critical care medicine).

3.2.3. Post-operative management

Post-operative management of complications in patients with ITP can be classified into two main approaches:

- (i) Extended time for post-operative observation. The bleeding risk in ITP patients typically persists for

24–72 h post-surgery. Therefore, the observation period should be extended post-surgery, with a recommendation of at least 72 h of observation in hospital. During this time, the patient's vital signs, hemoglobin levels, and occult blood in the stool should be closely monitored. For patients who continue to exhibit a tendency to bleed after surgery, continued use of IVIG or glucocorticoids should be considered to maintain platelet counts until the bleeding risk is fully resolved

- (ii) Individualized follow-up plan. An individualized follow-up plan should be developed after surgery, with regular monitoring of platelet count and coagulation function to assess the patient's recovery. For patients at high risk of post-operative bleeding, it is recommended that TPO-RA or other immunosuppressants be continued during follow-up for long-term management to maintain platelet count within a safe range.

3.2.4. Multidisciplinary collaboration

Endoscopic treatment for ITP patients requires close collaboration among multidisciplinary teams, including endoscopists, hematologists, and nursing staff. Through MDT, personalized treatment plans can be developed, with effective communication and coordination at pre-operative, intraoperative, and post-operative stages. This approach maximizes the reduction of bleeding risks while enhancing therapeutic outcomes.

3.3. Standardization of pre-operative colonoscopy for patients with potential polyp risk

With the increasing prevalence of colonoscopies, more patients are discovering colorectal polyps during these examinations, particularly those at higher risk (such as individuals over 40 years old, those with a family history of colorectal cancer, or those with chronic inflammatory bowel disease). For these patients, endoscopic polypectomy has become a crucial method to prevent polyp malignancy and reduce the incidence of colorectal cancer. However, non-standard pre-operative examinations can lead to the missed diagnosis of occult diseases, such as ITP, thereby increasing the risk of post-operative complications like bleeding.¹⁴ Therefore, it is essential to standardize the pre-operative examination process for patients at high risk of developing polyps.

3.3.1. Pre-operative complete blood cell count and coagulation function tests

For all patients at potential risk of polyps, a routine complete blood cell count and coagulation function test should be performed before surgery to screen for occult diseases

such as ITP and other coagulation disorders. Systematic pre-operative screening can help identify patients with thrombocytopenia or coagulation abnormalities early, thus preventing post-operative bleeding that is difficult to control.

3.3.2. Pre-operative medical history collection and risk assessment

Before surgery, a thorough medical history should be gathered from the patient, including past medical conditions, medication use, and any bleeding tendencies (such as gum bleeding or skin bruising). Particular attention should be given to any history of thrombocytopenia or coagulation disorders. A standardized questionnaire can be used to further rule out any hidden diseases. For patients who cannot provide a detailed medical history,¹⁵ their past examination data can be retrieved through the regional integration of electronic medical records and mutual recognition of examination results, ensuring a comprehensive understanding of the patient's health before surgery.

Based on the patient's medical history, laboratory test results, and the risk level of endoscopic procedures, a pre-operative risk assessment is conducted to develop an individualized surgical plan. For high-risk patients, such as those with ITP, a multidisciplinary consultation should be held before surgery to formulate a detailed surgical plan and emergency response plan, ensuring timely management of potential bleeding events during and after the procedure.

3.3.3. Patient education

Before the surgery, patients and their families should be thoroughly informed about the necessity of pre-operative examinations, the risks of the surgery, potential complications, and post-operative precautions. This is especially important for high-risk patients with conditions like ITP, where the risk of post-operative bleeding and preventive measures should be emphasized. Through pre-operative education, patients can better understand the risks involved in the surgery, improve their compliance, and ensure they actively participate in post-operative treatment and follow-up. In addition, a comprehensive post-operative management plan should be developed, taking into account factors such as the duration of post-operative observation, monitoring indicators (such as platelet count, hemoglobin levels, and occult blood in stool), and follow-up schedules to ensure that any potential complications can be promptly identified and managed.

4. Conclusion

This case highlights the data barriers in current inter-institutional diagnosis and treatment, particularly the lack of standardized interfaces in electronic medical

record systems, which leads to missing critical test results and increases the risk of pre-operative misdiagnosis. It is recommended to establish a unified data platform, enhance encryption technology and privacy protection, promote the implementation of policies and regulations, and enable real-time access to inter-institutional medical information. For ITP patients, a stratified management system encompassing the following should be established: mandatory pre-operative blood tests, combined with immunoglobulin/hormone pulse therapy hematologists when platelet levels are $<50 \times 10^9/L$; development of emergency response plans; effective hemostasis during surgery; post-operative observation extended to 72 h; monitoring for occult blood in stool and platelet count; and continued utilization of immunosuppressants for long-term management. In addition, the pre-operative screening process for colonoscopy should be standardized, including blood tests, coagulation function tests, detailed medical history collection, standardized questionnaire assessments, and the establishment of a risk stratification model using historical electronic medical record data. Through multidisciplinary collaboration, data sharing, and standardized pre-operative screening, the risk of post-operative bleeding in ITP patients can be effectively reduced, the safety of endoscopic treatment can be improved, and important references can be provided for improving medical quality.

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Conflict of interest

The authors declare no conflict of interest.

Author contributions

Conceptualization: All authors

Investigation: All authors

Writing–original draft: Yaning Jin

Writing–review & editing: All authors

Ethics approval and consent to participate

Publication of this case report was approved by the Guyuan People's Hospital, Guyuan, Ningxia Hui Autonomous Region, China. Written informed consent was obtained from the patient prior to participation.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report.

Availability of data

No data set was generated or analyzed during this study.

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