

# Seven cases of upper gastrointestinal bleeding after cold biopsy

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## Bibliography

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**Background and study aims:** Routine biopsy of the upper gastrointestinal tract is performed with increasing frequency. It is generally considered to be safe without significant complication. However, gastrointestinal bleeding as a result of cold biopsy is a known complication. We report seven

cases of upper gastrointestinal bleeding after cold biopsy and discuss clinical data, risks factors, severity and management of this event. We suggest that physicians must be more cautious with this rare but potentially severe complication.

## Introduction

Routine biopsy of the upper gastrointestinal tract is performed with increasing frequency, especially for the management of *Helicobacter pylori* and surveillance of atrophic gastritis [1]. Biopsy is also necessary if endoscopic examination is normal, for example, in case of iron deficiency anemia with no identified cause, chronic diarrhea, suspicion of celiac disease, or parasitological infection [2]. Diagnostic upper gastrointestinal endoscopy is generally considered safe and gastrointestinal bleeding as a result of cold biopsy is a rare complication [3]. We report a case series of 7 patients with significant upper gastrointestinal bleeding related to cold biopsy.

clinical presentation consisted of hematemesis (2 patients), melena (5 patients) or hematemesis and melena (2 patients). All patients were hemodynamically stable on presentation.

First endoscopy showed non-ulcerated gastritis (4 patients), Barrett's esophagus (1 patient) or no abnormality (2 patients). Second endoscopy showed fresh blood and clots (4 patients), neither blood nor clots (3 patients) and ulcerations classified as Forrest Ia (1 patient), Forrest IIa (2 patients), Forrest IIc (1 patient) or Forrest III (3 patients) without other potential causes of bleeding. Bleeding occurred after gastric (5 patients), esophageal (1 patient) or duodenal (1 patient) biopsies. Endoscopic therapy was necessary in two cases. Two patients were using aspirin only and one patient was using aspirin and clopidogrel. *H. pylori* infection, evaluated in all patients, was present on histology in two patients. According to an international severity grading system, the gastrointestinal bleeding was classified as moderate (requiring transfusion in 5 patients) or mild (not requiring transfusion in 2 patients) AE [4].

## Case Reports

Seven consecutive patients (4 women and 3 men; mean age 63, range: 41–91) treated between June 2011 and February 2015 were retrospectively reviewed (Table 1). Upper gastrointestinal endoscopy was performed using Olympus series endoscopy and biopsies with Boston Scientific (RadialJaw™ 4, 2.8-mm diameter, standard capacity, jaw O.D: 2.2mm, without needle) (6 patients) or Olympus EndoJaw (FB-230 K, 2.8-mm diameter) (1 patient) devices. Five patients (4 inpatients, 1 outpatient) were explored in our center for epigastric pain and/or dyspepsia. Two patients were referred to our center for upper gastrointestinal bleeding after an upper gastrointestinal endoscopy with cold biopsy. Post-biopsy

## Discussion

Upper gastrointestinal endoscopy is a common procedure used as a diagnostic tool to evaluate patients with a wide range of problems and complaints. Slight bleeding is common from gastric or duodenal biopsy sites whereas significant bleeding is rare. Bleeding related to cold biopsy is not mentioned in one recent paper concerning AEs in endoscopy [5].

## License terms



**Table 1** Baseline and clinical data, endoscopic findings, and outcomes in seven patients with upper gastrointestinal bleeding related to biopsy.

	Age Sex	First endoscopy/ No. biopsies (N)	Second endoscopy	Time between first endoscopy and bleeding	Endoscopic therapy	Rockall score/ Blatchford Score	Hemoglobin at admission	RBC transfusion	Hemoglobin after blood transfusion
1	91 F	Nonulcerated gastritis/ 6 biopsies	Fresh blood and clots in stomach Fundic ulceration Forrest III	1 day	No	7/12	7.4 g/dL	2 RBC	10 g/dL
2	80 F	Nonulcerated gastritis 5 biopsies	Fresh blood and clots in stomach Fundic ulceration Forrest Ia	4 days	Injection ther- apy	8/11	9.6 g/dL	2 RBC	12.2 g/dL
3	56 M	Nonulcerated gastritis 2 biopsies	No blood nor clots Two antral ulcerations Forrest III	6 days	No	1/5	12 g/dL	No	No transfusion needed
4	57 F	Normal 3 biopsies	Fresh blood and clots in stomach Antral ulceration Forrest IIa	1 day	Clip	3/10	9.8 g/dL	2 RBC	11.1 g/dL
5	61 M	Barrett's esophagus 2 biopsies	Clots at junction Esophagogastric junction ulceration Forrest IIa	2 days	Injection ther- apy	4/7	7.7 g/dL	4 RBC	11.3 g/dL
6	56 M	Nonulcerated gastritis 2 biopsies	No blood nor clots Antral ulceration Forrest III	6 days	No	5/11	8 g/dL	4 RBC	11.5 g/dL
7	41 F	Normal 2 biopsies	No blood nor clots Duodenal ulceration Forrest IIc	1 day	No	3/7	9.2 g/dL	No	No transfusion needed

RBC, red blood cells

In our series we believe that bleeding was certainly related to biopsies because: 1) first endoscopy showed no ulcerated lesion; 2) second endoscopy showed blood or clots and one or more *de novo* ulcerations; 3) the close temporal relationship between cold biopsy and bleeding (median: 3 days) supports a causal role; and 4) there was relationship between the bleeding site and the site where the biopsies were taken.

Data on gastrointestinal bleeding related to cold biopsy is very rare in the literature. In one study the risk of upper gastrointestinal endoscopy after cold biopsy was 0.004% [6]. Another study shows that only five of 7,275 patients (0.07%) explored by endoscopy with biopsy experienced overt gastrointestinal bleeding following mucosal biopsy [7]. At our center, 4,290 patients underwent endoscopy with biopsies during the same period (between June 2011 and February 2015) some on an inpatient basis and some as outpatients, with an incidence of gastrointestinal bleeding related to biopsies of 0.0016%. This case series also shows that overt gastrointestinal bleeding following mucosal biopsy can occur even when biopsy forceps are small-capacity (Jaw O.D :2.2 mm), a point that has not been previously discussed [6, 7]. This small experience is not sufficient to provide an answer to the question of whether *H. pylori* infection is associated with a higher risk of gastrointestinal bleeding after biopsy. It is important to note that in our series, only two patients were on antiplatelet therapy. European guidelines state that upper gastrointestinal endoscopy with mucosal biopsy at any site is associated with a very low risk of bleeding, which does not increase in patients on mono or dual antiplatelet therapy [8].

This case series demonstrates that upper gastrointestinal bleeding does occur after upper gastrointestinal tract biopsy, including cases in which standard capacity biopsy forceps are used. Even though such bleeding is rare, if it is severe, the patient could require unplanned hospitalization and/or blood transfusion. Physicians should probably perform more rigorous evaluation of the risk/benefit equation for biopsy in individual patients and counsel them about the possibility of bleeding without minimizing the risks associated with that complication.

**Competing interests:** None

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