

LETTERS TO THE EDITOR

The Use of Likelihood Ratios and Odds Ratios by Sawhney *et al.*

TO THE EDITOR: The article by Sawhney *et al.* compares the prevalence of advanced colonic neoplasm in nonanemic patients and anemic patients with a variety of ferritin levels (1). While the use of odds ratios in Table 3 is correctly interpreted in the text, the likelihood ratios in Table 4 are not clearly discussed in the text.

Guyatt *et al.* define an odds ratio as “a ratio of the odds of an event in an exposed group to the odds of the same event in a group that is not exposed” (2). Using the data from Table 3, Sawhney *et al.* correctly state patients with ferritin <50 ng/mL and ferritin 51–100 ng/mL are almost 5 times more likely to have advanced colonic neoplasia than those patients with ferritin >100 ng/mL or nonanemic controls.

A likelihood ratio is defined by Guyatt *et al.* as the relative likelihood that a given test would be expected in a patient with as opposed to one without a disorder of interest (2). Fletcher and Wagner state likelihood ratios reflect the probability of that test result in people with the disease divided by the probability of the result in people without disease (3). Therefore, using the likelihood ratios in Table 4, the authors should have clarified in the text that a ferritin >100 ng/mL is 0.27 times as likely to occur in a patient with colonic neoplasm compared to a patient without colonic neoplasm.

If a statement defining likelihood ratios was included, readers could more readily interpret the results. The likelihood ratio and the odds ratio could then be expressed to a patient in terms that the patient could understand and weigh the risks and benefits.

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Response to Bansal and Schwartz

TO THE EDITOR: We thank Dr. Bansal and Dr. Schwartz for their interest in our study. We used the stratum-specific likelihood ratio method described by Peirce and Cornell in an exploratory analysis to determine the optimum cutoff for serum ferritin, and not simply to compute a likelihood ratio for ferritin >100 ng/mL (1). Therefore, only stratum-specific likelihood ratio was defined in the methods section of the article (2). In our experience, accuracy, positive predictive value, and negative predictive value are better comprehended by patients when discussing risks and benefits of a diagnostic test. These are reported in Table 5 of the article (2).

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Prevention of Donor to Recipient Transmission of HCV in Stem Cell Transplantation: Some Issues

TO THE EDITOR: We have read with interest the report by Surapaneni *et al.* (1) showing a patient with acute myeloid leukemia (AML) receiving hematopoietic stem cell transplantation (HSCT) from a hepatitis C virus (HCV) RNA-positive donor who was treated with combination therapy of pegylated interferon alfa-2b and ribavirin (PegIFN/Riba) prior to harvest. Several points are noteworthy. First, the Bayer versant branched DNA (bDNA) assay (Bayer Health Care LLC, Tarrytown, NY) is based on the hybridization of HCV RNA to oligonucleotide probes (2, 3), not polymerase chain reaction (PCR), as stated by the authors. Second, since it is critical to ascertain the lack of HCV viremia in this recipient, the “negative” results of serum HCV RNA require confirmation with more sensitive assays for the detection of HCV RNA, such as the Cobas AmpliCor HCV Test, version

2.0 (Roche Diagnostics, Branchburg, NJ.) or the Versant HCV RNA Qualitative Assay (Bayer Diagnostics, Emeryville, CA). Third, the donor was treated for 5 wk and then stopped the therapy for 2 wk and then treated for 9 subsequent weeks. We have observed that a sustained viral response (SVR) might be achieved in patients who received PegIFN/Riba for 8–15 wk, especially for HCV genotype 2 infected patients with rapid viral response (RVR) (HCV RNA seronegativity at week 4) (4). Although this donor might achieve RVR (a negative HCV RNA at week 5), the HCV RNA should be tested 2 wk after cessation of therapy to document the negative HCV RNA for the donor in case of the possible emergence of HCV relapse during this period. Last, the granulocyte colony-stimulating factor (G-CSF) has been used in mobilizing peripheral blood progenitor cells in healthy donors for allogeneic HSCT and leukapheresis has been recommended to perform on day 4 or 5 (5). To avoid a longer period of stopping therapy due to the need for adequate number of cells for harvesting of peripheral stem cells, 2 wk reported in the case, will be an important issue in the combination therapy of PegIFN/Riba in the HSCT setting. Since the use of G-CSF has been also reported to counteract the severe leukopenia during combination therapy (6), whether more aggressive use of G-CSF in combination therapy with PegIFN/Riba for HCV RNA-positive donors prior to harvest can offer a resolution helpful for prevention of donor recipient transmission of HCV needs further studies in the future.

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Response to Dr. Dai *et al.*

TO THE EDITOR: We thank Dr. Dai *et al.* for their comments on our case report involving a patient with acute myeloid leukemia (AML) receiving stem cell transplantation (SCT) from a hepatitis C virus (HCV) RNA-positive donor who was treated with combination therapy of pegylated interferon alfa-2b and ribavirin prior to harvest (1).

1. We appreciate the correction by Dr. Dai *et al.* that the Bayer versant branched DNA (bDNA) assay (Bayer Health Care LLC, Tarrytown, NY) is based on nucleic acid hybridization process and not polymerase chain reaction as stated in our article.
2. The recipient was seronegative at week 3 and week 11 after SCT based on a qualitative assay. We agree with Dr. Dai *et al.*'s suggestion that the “negative” results of serum HCV RNA require confirmation with a more sensitive assay in the recipient. However, the recipient had a relapse of AML, was admitted to a different institution and expired before repeat testing could be performed.
3. It is interesting to note Dr. Dai *et al.*'s prior experience of outcomes of chronic HCV patients who required early termination of combination therapy wherein seronegativity was achieved at week 4 in 5 of 13 genotype-2 patients and none of 16 genotype-1 patients (2). The donor in our reported case had genotype 3 infection; a genotype believed to be less responsive to therapy than genotype 2. Despite the achieved sustained viral response, our report should not be construed as advocating a short or interrupted course of therapy. The unusual circumstances of the case forced us to undertake this course of therapy.
4. Dr. Dai *et al.* mention that “HCV RNA should be tested 2 wk after cessation of therapy to document the negative HCV RNA for the donor in case of the possible emergence of HCV relapse”. We did use a qualitative HCV PCR assay (Labcorp, Burlington, NC) at the cessation of therapy and it would have been of academic interest to have a measurement 2 weeks later. However, based on the rapidly deteriorating health of recipient the decision had been made to proceed with SCT without further delay. The recipient and his physicians had decided that further HCV testing would not have altered their decision to proceed at the time.

5. Our patient was harvested using the same protocol as mentioned by the authors *i.e.*, after 4–5 days of high-dose granulocyte colony-stimulating factor (G-CSF) (3). This was not attempted while the patient was still on interferon, on account of concerns that the harvested product may not contain adequate CD34 cells to ensure successful allogeneic engraftment and also to avoid the consequences of altered donor T-cell profile in the setting of allotransplantation. We agree that G-CSF may potentially nullify the cytopenias associated with interferon and may allow earlier collection. However, there is no data to support collection of peripheral blood stem cells in normal donors who are on interferon.

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Four Directed Biopsies are Better Than Eight Random Biopsies to Find Intestinal Metaplasia in Columnar Lined Esophagus

TO THE EDITOR: In this study, the authors try to define the optimum biopsy protocol when a gastroenterologist encounters a segment of columnar lined esophagus at endoscopy. As they correctly point out, the biopsy result “selects out those patients at risk of developing adenocarcinoma (intestinal metaplasia positive) and rejects those not at risk of malignancy (intestinal metaplasia negative).” They correctly conclude that the number of biopsies recommended must be balanced between the practical limitations and the likelihood of detecting intestinal metaplasia. They suggest that the number of biopsies presently taken by gastroenterologists in the United Kingdom is limited by logistical constraints to a total of four. In their conclusion, they suggest that the data in this study indicate that a minimum of eight biopsies is neces-

sary because such an increase improves the yield of intestinal metaplasia. They suggest that such an increase from four to eight biopsies is “feasible in the current clinical environment” for U.K. gastroenterologists.

This is not a recommendation that should be made lightly. Increasing biopsy numbers from four to eight stretches resources and it is not certain that the recommendation to increase biopsy numbers will occur in practice. Before the recommendation is made, one must be certain that the increase from four to eight is essential to improve the diagnostic accuracy. I suggest that this study does not provide proof that such an increase in number is necessary.

Intestinal metaplasia tends to favor the most proximal region of any columnar lined esophagus. In our study (1), which the authors cite, 94% of biopsies (64/68 biopsies in 32 patients with Barrett’s esophagus) taken from the columnar epithelium immediately adjacent to the squamocolumnar junction showed intestinal metaplasia. Even with a mean of 2.1 biopsies per patient at this most proximal level, the yield of intestinal metaplasia was 100%.

In the present study, the biopsies were “left to the discretion of the endoscopist.” Biopsies were randomly distributed within the columnar lined segment without regard to location. It is not even known whether the biopsies were placed in one or separate containers. The only data that could be derived from the biopsy protocol were the number of biopsies and the endoscopic length of columnar lined esophagus. The study showed a significant relationship between the number of biopsies taken and the length of the columnar lined segment. It is well known that the prevalence of intestinal metaplasia increases as the length of columnar lined esophagus increases (2). The result of the study that eight biopsies had a greater likelihood of finding intestinal metaplasia than four biopsies could be explained simply by the fact that the biopsy numbers were greater in the patients with longer segments of columnar lined esophagus.

The authors also state in their discussion that they could not confirm the difference between intestinal metaplasia in proximal and distal biopsies that we reported. The stated biopsy protocol in this study did not permit them to distinguish between proximal and distal levels. Without such information, they had no ability to either confirm or deny our finding.

There is excellent evidence that the occurrence of intestinal metaplasia is not a random event in columnar lined esophagus. Intestinal metaplasia almost always first occurs at the squamocolumnar junction and favors the most proximal region of the columnar lined segment (3). For a finding that is not random, any biopsy protocol that is directed at the site of maximum incidence of intestinal metaplasia has a much higher success rate than a random sample. To ask the U.K. gastroenterologists to increase their biopsies from four to eight and stretch their resources without examining whether a directed rather than random biopsy technique improves yield is not appropriate. I have suggested that the optimum yield of intestinal metaplasia in a patient with columnar lined

esophagus is to take four biopsies that straddle the squamocolumnar junction (3–5). It is crucial to have the actual squamocolumnar junction in the biopsy because intestinal metaplasia may consist of only a few goblet cells immediately adjacent to the junction. Irrespective of length of columnar lined esophagus, if this biopsy set does not contain intestinal metaplasia, it is highly unlikely that the more distal biopsies will. This biopsy protocol will have a yield that is greater than eight random biopsies taken throughout the columnar lined segment. In fact, the data in our study suggest that a number of biopsies less than four may be adequate. *The method of optimizing yield of intestinal metaplasia is not by increasing biopsy numbers; it is by directing biopsies to the location where it is most likely to be present.*

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Detection of Intestinal Metaplasia in Barrett's Esophagus

TO THE EDITOR: We are grateful to Dr. Chandrosoma for his obvious interest in our report (1). There are three separate points he raises: the need for more biopsies in sampling Barrett's metaplasia, the presence of a cephalocaudal gradient in Barrett's intestinal metaplasia (IM), and the feasibility of changing practice.

Currently the guidelines of many national gastroenterology societies, including the British Society of Gastroenterology (2) and the American College of Gastroenterology (3), recommend quadrant biopsies every 1–2 cm. For Dr. Chandrosoma to recommend 4 biopsies, which we found was the average number taken currently by British gastroenterologists, seems therefore surprising. This is particularly so as he emphasizes the importance of proximal biopsies, but does not mention that most cancers, and indeed dysplasia, occur in the distal esophagus adjacent to the gastroesophageal junction (4). Our paper is the first report to our knowledge to

indicate that there is indeed a cephalocaudal gradient of IM in Barrett's mucosa, though this is only present for those over 60 yr of age. There is other recent evidence to support this (5) and to contradict it (6). Therefore, while Dr. Chandrosoma may actually be correct that more proximal sampling in older patients may improve IM yield, our paper suggests that this would not pertain for those less than 60 yr. We couldn't confirm whether more goblet cells were also present in the sites of IM as has been reported previously (7).

The main reason we suspect there is poor adherence to the current guidelines is that most clinicians aren't convinced that the evidence base is robust enough. Our recommendations are likely to fuel active debate over the current unsatisfactory *status quo* whereby only 5% of centers sample Barrett's meticulously and the others simply do not. We welcome this letter and hope the GI community makes up its own mind based on the best evidence available.

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EUS-Guided Routine Liver Biopsy in Selected Patients

TO THE EDITOR: A subgroup of patients who present with abnormal liver tests and upper abdominal complains undergo multiple investigations including endoscopic ultrasound and liver biopsy. Endoscopic ultrasound (EUS) is useful in this situation as it evaluates the gall bladder, CBD, pancreas, and the liver parenchyma. Though EUS-guided biopsy is capable of obtaining tissue from the liver, a routine biopsy is usually performed by a traditional percutaneous approach in these patients.

The Quick Core (Wilson Cook, 19 gauge) true cut biopsy (TCB) needle can be used with linear echo endoscopes and

obtains core specimen from a target tissue (1–4). Biopsies of pancreas and submucosal lesions are routinely done. The TCB needle has not been reported to be used for a relatively routine liver biopsy. It is unclear whether this needle can obtain adequate liver specimen.

The results of using the TCB needle under EUS guidance for liver biopsy in two patients is described here: EUS was planned in two patients with abnormal liver tests and a possible extrahepatic cause. Neither of them had a prior liver biopsy and were looking forward to additional tests. Consent was obtained for possible core liver biopsy if the EUS exam was otherwise negative. Patients understood that an EUS-guided biopsy was not the standard approach. The first case was that of a 48-yr-old patient in whom there was suspicion of choledocolithiasis from previous studies. At EUS, there were no abnormalities. The second case was that of a 73-yr-old evaluated for painless jaundice. A vague pancreatic head lesion and presence of ascites were reported on prior imaging. At EUS exam, the pancreatic head was normal. There were multiple small varices in the pancreatic head region. The liver had a nutmeg appearance and significant ascites was noted.

In both patients the scope was positioned at the cardia. A window was identified away from the hepatic veins. Core biopsy specimens were obtained under EUS guidance on two separate passes. The path was visible through the entire biopsy. In both patients the liver could easily be punctured with the scope maintained in a rather straight orientation. There were no complications. No evidence of bleeding was noted on EUS after the biopsy. Though the second patient had obvious ascites, none was noted in the needle path. Satisfactory specimens were obtained. The length of the specimen was 0.8 cm and 1.1 cm and 0.6 and 1.0 cm in cases 1 and 2 (Figs. 1 and 2), respectively. In the first patient the pathologist reported a single granuloma and inflammation in one portal tract. The rest of the biopsy was normal. The second patient had probable cirrhosis (fibrosis stage 5 and hepatitis stage 4). Focal piecemeal and lobular inflammation was noted. We made a clinical diagnosis of cirrhosis.



Figure 1. EUS-guided trucut biopsy specimen from case 1.

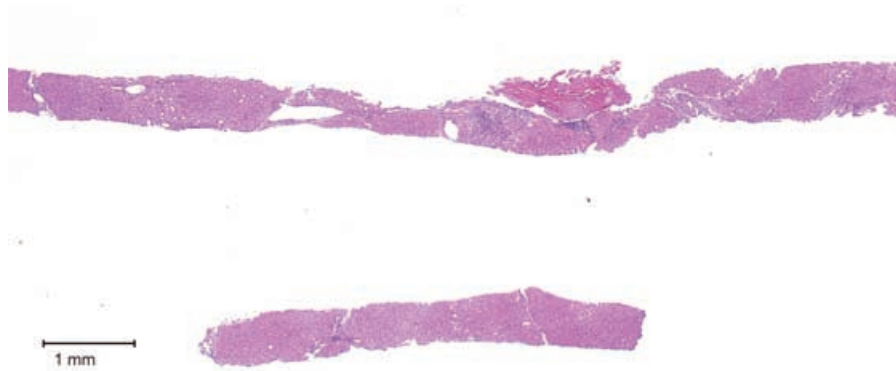


Figure 2. EUS-guided trucut biopsy specimen from case 2.

A percutaneous approach is traditionally used to perform liver biopsy and should be utilized in most patients. In selected cases, where EUS imaging is contemplated, an EUS-guided core biopsy may be considered. These two cases demonstrate that EUS-guided core biopsy is possible, and can obtain adequate specimen. Yet another visit for a liver biopsy can be avoided as it is performed during the EUS exam. Even in presence of ascites a fluid free window for the needle path can be used and is an advantage. Technically, performing the liver biopsy via the EUS scope was not difficult. Attention to limiting the degree of endoscope tip deflection and bending with the elevator of the Quick Core needle is important before firing the needle for optimal performance.

The author thanks Michael G. Bayerl, M.D., for the photographs.

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Total Colonoscopy With a Transparent Hood for Trainees

TO THE EDITOR: We read with interest the article by Kondo *et al.* (1) on a randomized controlled trial of total colonoscopy with or without a transparent hood. Because previous studies (2–4), including our study (3), on colonoscopy with the hood by experienced endoscopists failed to find a difference in cecal intubation time, they started examinations by trainees. They concluded that the hood was useful in high rates of cecal intubation and polyp detection, and in shortening the cecal intubation time in difficult cases of female and/or old patients. Based on our previous study, we had believed that colonoscopy with the hood allows easy cecal intubation by inexperienced endoscopists (3), and they successfully confirmed our speculation with favorable outcomes.

Although total colonoscopy to the cecum can be the goal whenever a colonoscope is introduced into the rectum (3), various patients' factors and technical difficulties may cause incomplete procedures (5). Patients with female gender, very young or old age, prior pelvic surgery, and diverticulosis are associated with a lower cecal intubation rate and/or longer cecal intubation time. Whereas the value of colonoscopy depends largely on the ability of endoscopists (3), incomplete colonoscopy by inexperienced endoscopists and the risk of complications due to the increasing number of colonoscopy have been considered.

An auxiliary device, a transparent hood, attached to the tip of a colonoscope has been reported to be helpful for total colonoscopy by depressing the semilunar folds (2–5). At bends, the luminal continuity is easily observed through the transparent wall of the hood (3), which facilitates to reduce loop formations of the colonoscope (5). Although the cecal intubation time was the same between colonoscopy with and without the hood by experienced endoscopists (2–4), more polyps were detected during colonoscopy with the hood (2, 3), which was well tolerated by patients (2, 4). In cases of difficult colonoscopy without the hood by trainees, repeat colonoscopy with the hood by the same endoscopists could markedly reduce the failure rate of total colonoscopy (5).

Due to the rapid progress of colonoscopic technology, colonoscopy is becoming increasingly popular for management of colorectal diseases (3). As a result, the demand for colonoscopy has greatly increased, but accompanied by relatively scarce manpower of experienced endoscopists. The transparent hood is commonly available, reusable, and inexpensive (5). Total colonoscopy with the hood ensures good visual fields and easy recognition of the luminal continuity at bends, and requires less experience of endoscopists (3). We hope this simplified technique by trainees could effectively cope with the increasing demand for colonoscopy.

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Pneumoencephalomeningitis Complicating Crohn's Disease: A Case Report

TO THE EDITOR: Fistulization is a common feature of Crohn's disease that can lead to a variety of complications. Over one-third of Crohn's patients will experience recurring fistulas during their disease course. Common fistula locations include perianal, perirectal, enteroenteric, enterovesical, and enterovaginal. Several case reports have commented on inflammatory bowel disease extending to the retroperitoneum, and there are reports of isolated paraspinal and epidural abscesses leading to meningitis (1, 2). There has also been one

report of a direct enterospinal fistula resulting in meningitis due to diverticular disease (3). We report a case of pneumoencephalomeningitis resulting from a direct enterospinal fistula in a patient with known Crohn's disease.

A 26-yr-old woman with a 1-yr history of terminal ileal and colonic Crohn's disease presented to the ER for evaluation of back discomfort and headache. She had been managed with mesalamine (Pentasa, Roberts Pharmaceutical Corporation, Eatontown, NJ) and 6-mercaptopurine without difficulty. Occasional Crohn's exacerbations with diarrhea were treated with tapering courses of prednisone. The rest of the patient's past medical history was non-contributory.

One month prior to admission, the patient reported the onset of back discomfort attributed to musculoskeletal disease which was treated with gabapentin (Neurontin, Pfizer U.S. Pharmaceuticals, New York, NY). Ten days prior to admission, a MRI scan, performed for persistent back discomfort, revealed L4–L5 disk disease of unknown etiology. The day of admission, the patient noted the onset of severe back and neck pain associated with an increasing headache and fever.

On examination, the patient was afebrile with stable vital signs. She had paraspinal tenderness and a positive Kernig's sign. The cardiac, lung, and abdominal exams were normal. The labs revealed WBCs of 11.8 (64% PMNs, 12% bands, 20% lymphs). The electrolytes were normal. A head CT scan revealed pneumocephalus as seen in Figure 1. A MRI revealed diffuse spinal cord enhancement with no evidence of an abscess. A lumbar puncture obtained CSF with 43.750 WBCs (92% PMNs), 1,000 RBCs, protein 3,000 mg/dL, glucose <20 mg/dL. A Gram stain of the CSF was positive for many Gram-positive cocci and Gram-negative rods. The cultures became positive for *Peptostreptococcus*, *E. coli*, and *Bacteroides*. Due to the fecal flora present in the CSF cultures, an additional abdominal and pelvic CT was performed. The scan revealed a right lower quadrant abscess and osteomyelitis of the sacrococcygeal bone. Due to the patient's history of inflammatory bowel disease, a fistula was considered a likely etiology of the pneumoencephalomeningitis.

A surgical consultation was placed. During the procedure a direct enterospinal fistula was noted. The patient underwent a colectomy and takedown of the enterospinal fistula. Eight days following the surgery, she was discharged on ceftriaxone and metronidazole with complete recovery.

Pneumocephalus, characterized by the presence of intracranial air, is a rare occurrence and has never been reported as a complication of Crohn's disease. Pneumocephalus occurs most often secondary to traumatic injury, tumor invasion, or manipulation during procedures. Rarely, it is associated with gas-producing organisms. Pneumocephalus can present days to weeks after a traumatic event and is most often diagnosed with CT scan. The diagnosis must be differentiated from tension pneumocephalus, which is a neurosurgical emergency and is most often found after neurosurgical evacuation of a subdural hematoma.

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Figure 1. CT scan showing pneumocephalus.

There have been previous reports of neuroenteric fistulas causing pneumocephalus, but they were associated with diverticular abscess or congenital malformations found in the pediatric population (3, 4). It was believed that pneumocephalus resulted from the gas-producing organisms causing meningitis. There have also been reports of meningitis as well as neurological deficits secondary to perispinal or epidural abscesses in patients with Crohn's disease (1, 2, 5, 6). However, there are no previous reports of pneumocephalus secondary to infection from Crohn's disease.

This case is unusual because the patient developed a spontaneous pneumocephalus that was complicated by a mixed pyogenic meningitis as a result of direct fistulization from Crohn's disease. The patient's pneumoencephalomeningitis appears to be the result of severe intestinal disease complicated by sacrococcygeal osteomyelitis and presacral abscess with the development of enterospinal fistulization. The prompt recognition in this potentially fatal complication is critical. Patients with Crohn's disease who present with severe back pain or symptoms of meningitis should be evaluated for fistula or abscess formation. Initiation of intravenous antibiotics and surgical correction is warranted. Multidisciplinary management can result in a good clinical outcome.

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Acute Liver Injury Associated With the Herbal Supplement Hydroxycut in a Soldier Deployed to Iraq

TO THE EDITOR: Over the counter nutritional supplements are used by an estimated 20% of the U.S. population and continue to grow in popularity (1). We present the case of a previously healthy young male who developed acute hepatotoxicity from the weight loss herbal supplement Hydroxycut (Iovate Health Sciences, Blasdell, NY) (2).

A 19-year old male U.S. Army soldier presented for evaluation at a troop medical clinic in Iraq to evaluate his chief complaint of approximately 6 days of nausea and vomiting. He denied any preexisting medical problems, prior surgeries, or use of prescription medications. He denied a personal or family history of hepatitis, jaundice, or other liver problems. He further denied a history of blood transfusion, IV drug use, or high-risk sexual exposures. He denied any alcohol consumption during the prior 6 months. He had been using the alternative medication Hydroxycut for weight loss daily for 4 months.

The patient was afebrile and with the exception of jaundice and scleral icterus his physical examination was normal. Initial laboratory evaluation revealed a serum aspartate aminotransferase (AST) level of 1,981 U/L (normal range, 15–41 U/L), serum alanine aminotransferase (ALT) of 1,143 U/L (17–63 U/L), serum alkaline phosphatase of 153 U/L (38–126 U/L), serum bilirubin of 11.7 mg/dL (0.2–1.3 mg/dL), serum direct bilirubin of 6.8 mg/dL (0.1–0.3 mg/dL), and prothrombin time of 17.1 s (10–14 s). Over a 2-day period in Iraq his serum bilirubin increased to 16.2 mg/dL. The

patient was medically evacuated to our institution for further evaluation.

On arrival the patient was jaundiced, but otherwise asymptomatic and without encephalopathy. On day 12 his serum AST and ALT peaked at 2,964 U/L and 1,435 U/L, respectively. Bloodwork was negative for hepatitis A, B, C, E, as well as EBV, CMV, and HIV. Antinuclear antibody, antiliver/kidney microsomal antibody, antismooth muscle antibody, serum acetaminophen, and urine drug screen were negative. Serum ceruloplasmin, iron studies, ferritin, and protein electrophoresis were all within normal limits. Doppler right upper quadrant ultrasound showed no gallstones and normal common bile duct caliber as well as normal portal and hepatic venous flow. The patient's jaundice resolved over the next month. His liver associated enzymes normalized within 4 months.

Acute hepatic injury has been linked to the weight loss herbal supplement Hydroxycut in a recent case report (3). Green tea extract (*Camellia sinensis*), one of the ingredients in Hydroxycut, has been associated with acute hepatic injury in other weight loss supplements and tonics (4). *C. sinensis*, contained in the weight loss supplement Exolise (Arkophama, Carros, France) was implicated in hepatotoxicity in numerous European case reports, leading to the product's withdrawal from the market (5). *C. sinensis* has also been associated with acute liver injury in another herbal supplement marketed as The Right Approach (Pharmanex, Provo, Utah) (4).

Herbal weight loss supplements, including those containing green tea leaf extract (*C. sinensis*), have been associated

with acute hepatotoxicity including life-threatening liver injury. We urge caution in the use of these products and stress the importance for clinicians to take a careful medication history in their patients with unexplained jaundice or abnormal liver associated enzymes.

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