

Laparoscopy. The Comparison with Ultrasonography and Computerized Tomography in the Diagnosis of Various Intraabdominal Pathologies. The Superiority of Laparoscopy in Cirrhosis

LAPAROSKOPI. DEĞİŞİK KARIN İÇİ PATOLOJİLERİNİN TANISINDA ULTRASON VE BİLGİSAYARLI TOMOGRAFİ İLE KARŞILAŞTIRILMASI. LAPAROSKOPİNİN SİROZDAKİ ÜSTÜNLÜĞÜ

Burhan KAYHAN*, Yusuf AKÇAN**, Mehmet ARSLAN*

* Hacettepe University, School of Medicine, Department of Gastroenterology, Ankara

** Abant İzzet Baysal University, School of Medicine, Department of Internal Medicine, Bolu, TURKEY

Summary

To date, it is not sufficient to take liver biopsies blindly or ultrasonography (USG) guided to make the exact diagnosis of histological grade caul stage in patients with liver diseases. As one could readily miss a small cirrhotic nodule by both methods. We propose laparoscopy as a method to eliminate this tin-desired result. We performed a retrospective study comparing the diagnostic accuracy of USG, computerized tomography (CT) and laparoscopy executed in patients with hepatic and other intraabdominal pathologies. The records of 91 patients who had undergone laparoscopy in Hacettepe University between 1988-95 were evaluated. Eighty-eight of these had USG, 45 of them CT and 39 of them had both examinations. The patients were composed of 33 females and 58 males with a median age of 49 years (range of 17-87 years.). Laparoscopy was superior ($p=0,05$) in making the diagnosis in 24 of 25 cirrhotics (96%), while USG in 18 of 25 patients (72%) and CT in 5 of 7 patients (71%). Laparoscopy was also superior in diagnosing the patients with tuberculosis peritonitis and peritoneal carcinomatosis as well. As a conclusion, we believe that laparoscopy guided liver biopsy would ensue more accurate diagnosis with respect to grade. Thus it would allow assessing the benefit of IFN treatment better, as it would discriminate between those having just active hepatitis and cirrhosis.

Key Words: Laparoscopy, Cirrhosis and diagnosis

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Yazışma Adresi: Dr. Yusuf AKÇAN
Kültür M. Namık Kemal S. No:8/5
Peştemalcı Apt.
14310 Düzce, BOLU

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Özet

Bugün için, karaciğer hastalıklarının histolojik tanısında tam dereceleme ve evrelemede, kör veya ultrason kılavuzluğunda alınan karaciğer biyopsileri yeterli değildir. Her iki metotla da yüzeydeki küçük bir sirotik nodul atlanabilir. Bu artefaktı kaldırmak için, laparoskopinin bu amaçlı biyopsilerde tanı metodu olmasını önermekteyiz. Karaciğer ve diğer karın içi patolojileri araştırmak üzere Hacettepe Tıp Fakültesinde 1988-95 yılları arasında yapılan laparoskopli sonuçlarını topladık ve bu hastalara uygulanan USG ve BT'ler ile karşılaştırmasını retrospektif bir çalışma olarak yaptık. Çalışmaya medyan yaş ortalamaları 49 yıl (17-87yıl) olan 33 kadın ve 58 erkek, toplamı 91 laparoskopi yapılmış hasta dahil edilmiştir. Bunlardan 88'ine USG, 45'ine BT ve 39'una da hem USG hem de BT yapılmıştır. Laparoskopi, 25 hastanın 24'ünde ($\%>96$) siroz tanısı koymuştur. USG 25 hastanın 18 'inde ($\%>72$), BT ise ise 7 hastanın 5'inde ($\%>71$) siroz tanısını zikretmişlerdir. Bu sonuçlarla laparoskopi anlamlı olarak ($p=0,05$) üstün bulunmuştun Laparoskopi ayrıca, periton tüberkülozu ve karsinomatozise de üstündür. Sonuç olarak, laparoskopi kılavuzluğunduk! karaciğer biyopsileri dereceleme açısından daha doğru sonuçlara ulaştıracaktır. Bu da IFN tedavisinin faydasını daha doğru hesaplamaya (kronik aktif hepatit ve sirozun ayırımını lam sağladığından) izin verecektir.

Anahtar Kelimeler: Laparoskopi, Siroz ve tam

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After the advancement of USG and CT, laparoscopy was begun to be considered as a later diagnostic method. But the clinical experience in time displayed that this decision was somehow earlier. Since the sensitivity and specificity of USG

and CT were not 100%, surgeons during laparotomies faced inoperable cases among those considered to be operable according to the findings of preoperative USG and CT. Considering these situations, there seems to be a necessity to benefit from laparoscopy to avoid unnecessary laparotomies. Likewise, it also gives an opportunity to diagnose the exact grade of liver disease by supplying a good guidance to take biopsies from exactly the cirrhotic nodules. We present here a retrospective analysis of our experience.

Nowadays interferon (IFN) treatment for chronic hepatitis has been investigated intensively. The therapeutic efficacy partly depends on the determined stage and grade of liver pathology. For example, IFN treatment for cirrhotic patients has more side effects and less beneficial expectancy (1). In this study, we want to argue also that how we could determine the actual stage and grade of liver disease accurately. Should the liver biopsy taken before the initiation of IFN for chronic hepatitis be obtained laparoscopically? And does this help to assess the therapeutic efficacy more appropriately for various histological grades.

In this study, we evaluated retrospectively the cases who had undergone laparoscopy that had been also examined by USG and CT. Their final diagnosis was noted and we compared the diagnostic accuracy of these three methods.

Material and Methods

We examined the records of 91 patients undergone laparoscopy between 1988-95. Eighty-eight

of these had USG, 45 of them CT and 39 of them had both examination. Thirty-three patients were female, while 58 were male. The median age of patients was 49 years with an age range of 17-87 years. The results of all diagnostic modalities were recorded. The results of pathological specimens were regarded to be the gold standard for eventual diagnosis of the cases. The hemangiomas were diagnosed after a follow-up time, seeing that the lesions were not changing and two consecutive measurements of alfa-feto protein as normal. The laparoscopic diagnosis of tuberculous peritonitis was made with the observation of numerous whitish nodules (<5 mm) over visceral and parietal peritoneum and the adhesions between adjacent organs. This presumptive diagnosis was to be supported by pathologic examination to differentiate from peritoneal carcinomatosis. The comparison of ratios of correct diagnosis between three methods was made by chi-square test.

Results

Laparoscopy was unsuccessful in two patients because the omentum had covered the area totally, in 1 patient due to bleeding and in 4 patients due to intraabdominal adhesions and bands. The results are shown in Table 1. In twenty-four of 25 (96%) patients with cirrhosis, the diagnosis was established by observing the nodules over the liver surface and taking the biopsies. In the remaining one patient, the procedure was not progressed due to omental coverage of the area. Among cirrhotic patients, 7 of them had undergone examination by

Table 1, The results of the parameters are presented.

	Total case number	Laparoscopy		CT		USG	
		n	(%)	n	(%)	n	(%)
Cirrhosis *	25	24 /25	(96)	5/7	(71)	18/25	(72)
peritoneal carcinomatosis *	20	20/20	(100)	9/11	(81)	14/20	(70)
Tuberculous Peritonitis	9	9/9	(100)	1/2	(50)	5/9	(55)
Liver metastasis and masses	24	23/24	(95)	11/13	(84)	14/16	(87)
Hemangioma	5	1/5	(20)	4/4	(100)	5/5	(100)
Others	14	10/14	(71)	6/8	(75)	11/13	(84)
Total	97**	87/97	(89)	36/45	(80)	67/88	(76)

* p<0,05 between groups

** The total number here is more because some patients have two pathologies simultaneously, i.e. cirrhosis and peritoneal carcinomatosis.

CT. while 25 by USG. CT told the diagnosis of cirrhosis in 5 of 7 (%71), whereas USG was successful in the diagnosis of 18 of 25 (%72) cases. With these results laparoscopy was superior in the diagnosis of cirrhosis to USG and CT ($p < 0.05$) in our cases.

Nine patients who had fever, abdominal pain, night sweating, and ascitis had undergone laparoscopy. All (100%) of them had undergone laparoscopy. There were observed tubercles on the parietal peritoneum and biopsies were taken. CT was performed in 2 of these. One of them (%50) was said to have suspicious of tuberculous peritonitis. USG on the other hand was performed in all of 9 patients. 5 of them (55%) were told to possess the findings compatible with the diagnosis of tuberculous peritonitis.

The diagnosis of 20 patients with peritoneal carcinomatosis was made with laparoscopy. Eleven of these were additionally examined by CT and all by USG. At the result, CT diagnosed these cases in nine of them (%81) and USG was diagnostic in 14 (70%) cases. Consequently, laparoscopy was more successful in the diagnosis of peritoneal carcinomatosis ($p=0.03$).

The three methods were comparable ($p=0.47$) in the diagnosis of masses in the liver and metastasis to liver (diagnostic accuracy for laparoscopy; 95%, for CT: 84% and for USG: 87%).

Although the sample size was small, if analyzed statistically, CT and USG were superior to laparoscopy in detecting hemangiomas unless the lesions were small and superficial ($p=0.02$).

The overall result was that laparoscopy had been more beneficial compared to USG and CT in diagnosing cirrhosis, superficial nodules and masses, in detecting the presence of ascitis. The deeper lesions, metastatic nodules, hemangiomas were more readily diagnosed by USG and CT.

Discussion

Laparoscopy is helpful for staging the gastrointestinal system malignancies. Tognarelli et al (2), reported that laparoscopy had been comparable with USG, and CT in diagnosing liver metastasis and obviously superior in peritoneal carcinomatosis. That is why, if one desired to avoid an un-

necessary laparotomy, he should have completed the staging procedure by USG, CT and laparoscopy. In another study from Denmark (3), it was found that 16 of 19 patients who had been assigned operable previously by USG and CT had been observed inoperable actually during laparotomy. In these patients it was possible to avoid from an unnecessary laparotomy, its morbidity and long hospitalization period by performing a preoperative staging laparoscopy.

Despite of the improvement in USG and CT techniques, 40 to 70% of primary or secondary liver malignancies were established inoperable during laparotomy. In a similar report, 14 of 29 such patients were found to be inoperable in laparoscopy (4).

Possik et al, evaluated the laparoscopy comparatively with other methods to diagnose liver metastasis and to stage gastric cancers. Peritoneal involvement was detected by laparoscopy with a sensitivity of 89.4%, while liver metastasis with a sensitivity of 96.5%. In the mentioned study, the sensitivity of USG and scintigraphy were found to be 78.6% and 78.7% respectively (5).

In a study of large size, it was reported that false negative and false positive results of CT were declared to be 10% for both (6). In cases of liver metastasis, the diagnosis could be made with an accuracy of 90% by clinical biochemistry and USG. The laparoscopy was the recommended method for the remaining 10% of cases (7).

Walt et al, detected peritoneal involvement in 9 of 90 cases with esophagus and gastric cancers. But none of them could have been diagnosed preoperatively by USG and CT (8). Warchaw et al, found in a study done for evaluation of pancreas cancer staging that CT had been ineffective for detecting peritoneal involvement, whereas laparoscopy had a sensitivity of 96% (9). Consequently, it is obvious that CT and USG were not sufficient enough to detect peritoneal lesions or pathologies on liver surface like small cirrhotic nodules. In this sense, our results were in accordance with the literature (10,11). The authors here declared that the laparoscopy was safe and superior in evaluating liver diseases.

We want to point out another possible benefit of laparoscope' nowadays. The success of interferon therapy for hepatitis B and C patients depends on some parameters. Patients with a short duration of disease and absence of cirrhosis respond better. Despite the benefits of alpha interferon therapy in many patients with chronic viral hepatitis, several shortcomings of this therapy are evident: less than 50% of patients respond in the long-term follow up, side effects can be problematical, and some patients are not appropriate for therapy. Thus, interferon is not indicated for patients with advanced cirrhosis or for those who are severely immunosuppressed (J). At present, most of the authors take the samples from these patients by a blind biopsy or under L'SO guidance. But regarding the summary of this paper, to know the actual state of the liver, whether it is cirrhotic or not, the biopsies should be obtained from the nodules which could be detected only by direct vision provided via the laparoscope. Only by this way one could categorize the liver pathology of the patient in its exact degree. Otherwise during the evaluation of IFN treatment protocols, some patients with cirrhosis could easily be misplaced into the category of chronic active hepatitis or vice versa. We believe that the higher success rates for IFN treatment in chronic hepatitis could be assessed more readily if it was possible to exclude cirrhotic patients by obtaining the biopsies laparoscopically.

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