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ARAŞTIRMA YAZISI / RESEARCH ARTICLE

HİGH GRADE SERÖZ OVER KANSERİ TANISINDA ULTRASON EŞLİĞİNDE TRUCUT İĞNE BİYOPSİSİ VE LAPAROSKOPİNİN KARŞILAŞTIRILMASI

COMPARISON OF ULTRASOUND-GUIDED TRUCUT NEEDLE BIOPSY AND LAPAROSCOPY IN THE DIAGNOSIS OF HIGH-GRADE SEROUS OVARIAN CANCER

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ÖZET

AMAÇ: Kliniğimizde high grade seröz over kanseri (HGSC) tanısında tru-cut biyopsi ile laparoskopiyi karşılaştırmayı amaçladık.

GEREÇ VE YÖNTEM: Retrospektif olarak tasarlanan çalışmamıza Ocak 2013 ile Aralık 2023 tarihleri arasında HGSC tanısıyla opere edilen hastalar dahil edildi. Patolojik olarak doğrulanmış (FIGO 2018) evre III veya IV HGSC hastalarına neoadjuvan kemoterapi (NACT) ve ardından interval debulking cerrahisi (IDS) uygulandı. Hariç tutma kriterleri, evre I ve II over kanseri olguları ve NACT almayan hastalardı. Ayrıca non-HGSC veya non-jinekolojik olgular çalışma dışı bırakıldı. Sonuç olarak çalışmaya 60 hasta dahil edildi. Katılımcılar iki gruba ayrıldı; grup 1 (NACT öncesi tru-cut biyopsi ile HGSC tanısı alan hastalar) ve grup 2 (NACT öncesi tanısal laparoskopi ile HGSC tanısı alan hastalar). Sağkalım analizleri, Kaplan Meier ve log-rank testi kullanılarak yapıldı. İstatistiksel anlamlılık p <0.05 olduğunda tanımlandı.

BULGULAR: 60 hastanın 32'sine tru-cut biyopsi, 28'ine laparoskopi ile tanı konuldu. Grup 1'in genel sağkalım oranı (OS) %53,1 ve grup 2 için %71,4 idi (p = 0,371). Progresyonsuz sağkalım (PFS) oranı grup 1 için 56,3 ve grup 2 için %64,3 idi (p = 0,464). Nüks, OS ve PFS açısından iki grup arasında anlamlı fark saptanmadı. Grup 1 ile grup 2 arasında sadece hastanede kalış süresi açısından anlamlı fark bulduk (p<0,001).

SONUÇ: HGSC, tanısı ve tedavisi zor olan over kanserinin histopatolojik bir alt grubudur. İleri evre over kanserinde primer debulking cerrahisi güncel yaklaşımda geri planda kalırken, hastaların tanısal değerlendirmesinde tru-cut biyopsinin hastanede kalış süresinin kısa olması açısından önemi unutulmamalıdır.

ANAHTAR KELİMELER: High Grade Seröz Over Kanseri, Laparoskopi, Sağkalım, Tru-cut Biyopsi.

ABSTRACT

OBJECTIVE: We aimed to compare tru-cut biopsy with laparoscopy in the diagnosis of high-grade serous ovarian cancer (HGSC) in our clinic.

MATERIAL AND METHODS: Our retrospective study included patients who underwent surgery for HGSC between January 2013 and December 2023. Patients with pathologically confirmed (FIGO 2018) stage III or IV HGSC underwent neoadjuvant chemotherapy (NACT) and interval debulking surgery (IDS) were performed. Exclusion criteria were patients with stage I and II ovarian cancer and who did not receive NACT. Additionally, patients with non-high-grade serous ovarian cancer or non-gynecological conditions were excluded. As a result, 60 patients were included in the study. Participants were categorized into two groups, namely, Group 1 (Patients diagnosed with HGSC by tru-cut biopsy before NACT) and Group 2 (Patients diagnosed with HGSC by diagnostic laparoscopy before NACT). Time-to-event analyses were conducted using the Kaplan- Meier method and log-rank test. Statistical significance was defined when p < 0.05.

RESULTS: Out of the 60 patients, 32 patients were diagnosed by tru-cut biopsy and 28 patients with laparoscopy. The overall survival (OS) of Group 1 was 53.1%, and for Group 2, it was 71.4% (p = 0.371). The progression-free survival (PFS) rate was 56.3 for Group 1 and 64.3% for Group 2 (p = 0.464). No significant difference was detected in terms of recurrence, OS and PFS. We found a significant difference between Group 1 and Group 2 only in terms of hospitalization time (p < 0.001).

CONCLUSIONS: HGSC is a histopathological subgroup of ovarian cancer that is difficult to diagnose and manage. While primary debulking surgery remains in the background, the importance of tru-cut biopsy in terms of short hospital stay should not be forgotten in the diagnostic evaluation of patients.

KEYWORDS: High- Grade Ovarian Carcinoma, Laparoscopy, Survival, Tru-cut Biopsy.

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INTRODUCTION

High-grade serous ovarian cancer (HGSC) is the fifth cause of cancer-related mortality in women in the United States (1). The majority of HGSC patients are diagnosed in advanced stages (2). In the current approach, intermittent debulking surgery (IDS) is preferred over primary debulking surgery as the primary treatment of advanced-stage HGSC (3). Diagnostic analysis must also be made when preoperative diagnosis is crucial for further treatment (4). Ultrasound-guided tru-cut needle biopsy allows comprehensive histological evaluation including immunohistochemistry (5). However, in cases such as massive ascites, inability to reach the mass with tru-cut biopsy, or inability to reach a definitive pathological diagnosis from the material obtained by tru-cut biopsy, tumor biopsy can be performed by laparoscopy or laparotomy (6). The National Comprehensive Cancer Network supports diagnostic laparoscopy for HGSC for appropriate clinical staging and biopsy (7). This study aimed to compare ultrasound-guided tru-cut needle biopsy with diagnostic laparoscopy in patients who underwent surgery for HGSC in our clinic.

MATERIALS AND METHODS

Population and study design

Cases who were operated with the diagnosis of HGSC between January 2013 and December 2023 were included in our study, which was designed retrospectively. Patients with pathologically confirmed (FIGO 2018) stage III or IV HGSC underwent neoadjuvant chemotherapy (NACT). Exclusion criteria were cases with stage I and II ovarian cancer and who did not receive NACT. Additionally, patients with non-high-grade serous ovarian cancer or non-gynecological conditions were excluded. As a result, 60 cases were included in the study. The patient's age, hospitalization time, hemoglobin levels, height, and weight were recorded. CA125 levels were checked from the laboratory values of the patients.

Predictors of suboptimal cytoreduction

We used tru-cut biopsy or laparoscopy for the diagnosis of advanced- stage patients. In predicting suboptimal surgery; we used the detection of advanced age, poor performance status, large-volume ascites in imagıng methods (Magnetic Resonance Imaging (MRI), Computerized Tomography (CT), Positron Emission Tomography (PET-CT)***)***, the absence of numerically increased small lymph nodes at the mesenteric root and omental cake (8 - 10).

Ultrasound-guided tru-cut needle biopsy

Tru-cut biopsy was performed by a radiologist under sonography guidance. The spread of the disease was evaluated by the radiologist with imaging methods before the procedure. In the presence of acid, it was drained to reduce the risk of bleeding. Percutaneous acid drainage was performed using the Seldinger technique into the largest acid cavity. Biopsies were performed under ultrasound guidance, abdominally or transvaginally, with a semi-automatic 18-gauge needle.

Diagnostic Laparoscopy Prosedure

A 10-mm scope is used in our institution, and a 0° laparoscope is used routinely. We opted for umbilical access using the open entry technique (Hasson technique) under direct vision (11). We made a small transverse or longitudinal incision at the umbilicus. In case of widespread acid, we drained the acid from this incision with an aspirator and sent it for cytological examination, carefully preventing contamination of the entry site. The abdominal cavity was fully inspected. Multiple biopsies were taken in resectable lesions from the adnexa, omentum, and peritoneum. We inserted a powder-free surgical glove into the abdominal cavity. We filled the biopsies taken into the glove and removed them from the 10 mm lateral trocar by clipping the open part of the glove. We sent the biopsies to pathology for evaluation. The surgical procedure was completed after bleeding control.

Interval debulking surgery and neoadjuvant chemotherapy

Interval debulking surgery (IDS) was performed on patients who received NACT (3 cycles of carboplatin and paclitaxel chemotherapy) after diagnosis by tru-cut biopsy or diagnostic laparoscopy. Standard surgical procedures in our clinicinclude total abdominal hysterectomy, bilateral salpingo-oophorectomy, in-

fracolic omentectomy, and pelvic lymphadenectomy. Pelvic lymph nodes were dissected starting from the common iliac artery to the circumflex vein, and the lymph nodes covering the obturator nerve and around the iliac vessels were removed. Para-aortic lymph node sampling was performed based on the preoperative imaging methods and intraoperative exploration. All surgical procedures aim for optimal debulking surgery with residual disease <1 cm.

Ethical Committee

Our study was approved by Afyonkarahisar Health Sciences University Ethics Committee (grant number: 03.05.2024/3). Informed consent was obtained from all patients before surgery and intervention, and during hospitalization. The study was designed in accordance with the Declaration of Helsinki.

Statistical Analysis

Statistical analysis was conducted using IBM SPSS Statistics for Windows (Version 22.0. Armonk, NY, USA). For continuous variables, standard deviation, mean and median were calculated. The Chi-square test and Mann-Whitney U test were used to compare the two groups. Time-to-event analyses were conducted using the Kaplan- Meier method and log-rank test. Statistical significance was defined when $p < 0.05$.

RESULTS

Out of the 60 patients with HGSC, 32 patients were diagnosed with tru-cut biopsy and 28 patients with laparoscopy. Participants were categorized into two groups, namely, group 1 (Patients diagnosed with HGSC by tru-cut biopsy before NACT) and group 2 (Patients diagnosed with HGSC by laparoscopy before NACT). The baseline characteristics of the two groups are summarized in **Table 1**.

Table 1: Patients characteristics (Total number of patients = 60)

	Group 1	Group 2	p value
Number of patients	32	28	-
Mean age (years)	58.6 ± 9.7	56.6 ± 8.9	0.181
Median CA-125 level (U/mL)	664.5 (10 – 5378)	530 (14-7311)	0.330
Mean Body mass index (kg/m2)	31.9 ± 4.7	34.9 ± 4.9	0.153
Surgical stage III IV	 16 16	 15 13	0.493
Median hospitalization time (hours)	5 (2-36)	37 (24-120)	<0.001*
Mean hemoglobin level before the procedure (g/dL)	11.7 ± 2.1	11.8 ± 1.6	0.742
Mean hemoglobin level after the procedure (g/dL)	11.5 ± 1.9	11 ± 1.7	0.457
Recurrence	14	10	0.356
Overall survival	53.1%	71.4%	0.371
Progression free survival	56.3%	64.3%	0.464

The median overall survival (OS) was 33 months (1-81) and the progression-free survival (PFS) was 14 months (6–81). During the follow-up period, 23 patients died and 24 patients had a disease recurrence. Vaginal examination, CA125 levels, and imaging methods (MRI, CT, PET-CT) were used to detect recurrence. We found a significant difference between the two groups only in terms of hospitalization time ($p < 0.001$). There was no significant difference between the two groups in terms of recurrence, OS, and PFS. The OS of HGSC was 61.7%, and the PFS was 60%. OS rates were compared for Group 1 and Group 2 **(Figure 1)**. Additionally, PFS rates were compared for both groups **(Figure 2)**. The OS of Group 1 was 53.1%, and for Group 2, it was 71.4% ($p = 0.371$). The PFS rate was 60%. The PFS rate was 56.3 for group 1 and 64.3% for group 2 ($p = 0.464$).

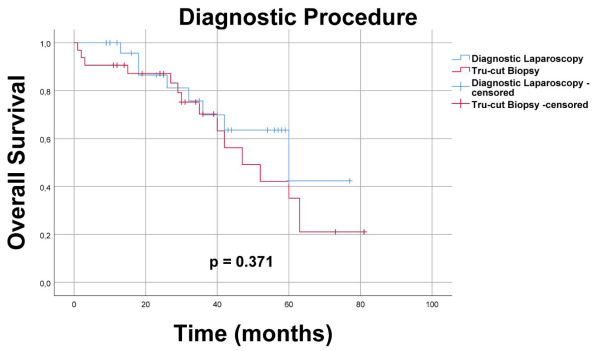

Figure 1: Overall survival rates with respect to diagnostic procedure

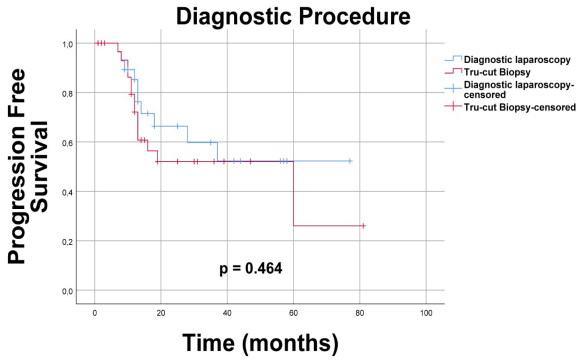

Figure 2: Progression-free survival rates with respect to diagnostic procedure

DISCUSSION

In this study, we compared ultrasound-guided tru-cut needle biopsy with laparoscopy in the diagnosis of advanced-stage HGSC. There was no significant difference in the management of HGSC between the 2 groups, except for hospitalization time. Although the National Comprehensive Cancer Network supports diagnostic

laparoscopy in the management of advanced HGSC, the importance of tru-cut biopsy is open to debate. Vlasak et al., in their study using tru-cut biopsy in diagnosis, found that there was an 81.8% agreement between preoperative and definitive postoperative histology (12). Zikan et al. found the accuracy of the agreement between the final pathology result and the tru-cut biopsy result to be 98.3% (13). By comparing final histology, Verschuere et al found the diagnostic accuracy of tru-cut biopsies to be 97.2% (5). Although tru-cut biopsy is advantageous in terms of hospital stay, it has also been evaluated in terms of complications. From this perspective, in the study conducted by Fischerova et al. including 86 patients, only one complication requiring laparotomy occurred (14). In the study conducted by Shah et al. which included 62 patients, no complications occurred (15). However, tru-cut biopsy cannot always provide a diagnosis, and in these cases, laparoscopy is helpful in diagnosis. Verschuere et al. required repeat tru-cut biopsies due to insufficient sampling in their study (5). Although repeated biopsies are thought to cause a delay in the management of advanced HGSC, Nasioudis et al. showed that delayed IDS had no effect on overall survival in high-grade epithelial ovarian cancer (16).

Although laparoscopy is valuable in diagnosis to determine the primary treatment for HGSC, it also carries some problems (17). However, compared to tru-cut biopsy, there is a risk of anesthesia complications and longer hospitalization time. It also poses a slight risk of port side metastasis. Tumor recurrence at the port site has been observed after laparoscopy, with a reported clinical incidence of 2% (18). However, in advanced ovarian cancer, port site recurrences after laparoscopy likely have no impact on survival (19).

Exploratory laparotomy is another option for the diagnosis of advanced HGSC. However, Lin et al. showed that minimally invasive surgery was generally beneficial because of its shorter hospitalization period, decreased rates of perioperative complications, wound infection, and postoperative pain (20). Jochum et al. reported that laparoscopy surgery has been introduced as a safe and effective alternative to laparotomy for staging surgery (21). HGSC is a histopathological subgroup of ovarian cancer that is difficult to diagnose and manage. Imaging methods and pelvic examination are very important for optimal surgery. While primary debulking surgery is kept in the background, many parameters should be taken into consideration when evaluating patients in terms of diagnosis, and the importance of tru-cut biopsy in terms of short hospitalization time should not be forgotten. All authors read and approved the final version of the manuscript. All authors agree to be accountable for all aspects of the work and participate adequately in the work.

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