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Contribution of Diagnostic Laparoscopy (on a series of 113 cases): Experience of the Department of Visceral Surgery I Mohammed V Military Hospital Rabat

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ABSTRACT

INTRODUCTION

Laparoscopy (or laparoscopy) is considered in surgery as a non-invasive elective approach.

It allows a shorter duration of hospitalization, fewer scarring sequelae, an improvement in morbidity and a reduction in the cost of the intervention.

In our case study, we propose a retrospective study of about 113 patients, the aim of which is to underline the interest of laparoscopy in the discovery and/or confirmation of the diagnosis, in situations where the etiological diagnosis could not be established, despite morphological examinations.

MATERIALS AND METHODS

1-Materials

This is a study carried out within the visceral surgery department I of the Mohamed V military instruction hospital in Rabat spread over a period of 5 years, from January 2016 to December 2021.with 113 patients.

2-Methods

This is a retrospective study.

We included in our study:

- All patients who underwent laparoscopy for suspected peritoneal tuberculosis, ascites, carcinoma, and proven gastric adenocarcinoma as part of the pre-therapeutic assessment.
- Our recruitment concerned all ages and genders.

We did not include in our study:

- Other surgical techniques.
- All incomplete files.

The search for the cases concerned and their file numbers were made from registers digitized on a computer within the visceral surgery department of the HMIMV in Rabat.

We began our study by drawing up a standard operating form which includes:

- A first part is to collect data relating to the preoperative period (age, sex), history (medical, surgical, and toxic), and the indication for diagnostic laparoscopy.
- A second part corresponds to the intraoperative period.
- A third party where we collected information on the postoperative period (histopathological results, diagnosis established or not, surgical complications, etc.)

OPERATING SHEET

DATA RELATING TO THE PRE-OPERATIVE EVALUATION

History:

Last name : …. First name : …. Age : …. Sex: …. Hint: ….

The Antecedents:

Medical:

Pulmonary tuberculosis, Hypertension, Diabetes, Dyslipidemia, Heart disease, etc.

Surgical

……

Toxic: Smoking, Alcoholism, Others ……..

Ongoing treatment

……...

Tele:

E-mail address: docbido@gmail.com

Clinical examinations:

Digestive
……
Respiratory
……..……..
Cardiovascular system
……
Other devices
……

Additional tests

Abdominal ultrasound
Abdominal computed tomography
Esophagogastroduodenal fibroscopy
PET scan

DATA RELATING TO THE PRE-OPERATIVE EVALUATION

Indication for diagnostic laparoscopy	Date of intervention
Position : French or americain position	Open laparoscopic : Yes ou no
Operating time : Ascites or not ?	Anatomopathology: Yes ou no
Associated gesture	Bacteriology: Yes ou no
Incidents-Accidents : Converting-Cause	Other…

DATA RELATING TO POST-OPERATIVE EVALUATION

Pathology

Epithelio-gigantocellular granuloma
Gastric ADK
Colorectal carcinoma
Non specific inflammation

Study of ascites fluid

Acid Fast Bacilli (AFB)
Tumor cells
Featureless

RESULTS

1.General data

1.1 Age

The average age of our patients was 51.2 years with extremes ranging from 35 years to 71 years.

1.2 Gender

It was dominated by the male sex; indeed 67 patients were men, i.e. 59.3%.

1.3 Directions

In our study, we collected data about 113 cases, in whom laparoscopy was performed for diagnostic purposes.

The main indications were:

•AEG (suspicion of tuberculosis).
•Ascites (suspicion of tuberculosis).
•Assessment of extension of a gastric ADK.
•Colorectal cancer staging assessment.

In fact, 53 patients presented with AEG (47% of cases), 33 patients benefited from an extensive assessment within the framework of gastric ADK (29% of cases), and 16 patients benefited from an assessment extension in the context of colorectal cancer (14% of cases) and 12 patients presented with isolated ascites (10% of cases).

2. Preoperative period

2.1 Exam positions

The position on the examination table varies according to the operator and the indication for diagnostic laparoscopy.
We distinguish :

•The Dubois French position is practiced in 80% of cases.
•The American position is practiced in 20% of cases.

2.2 Exploration and sampling

In the case of an abnormal abdomen (20% of cases), exploration is based on a systematic sampling at the level of the diaphragmatic cupola coupled with peritoneal lavage.

In the event of peritoneal nodules (70% of cases), a biopsy sample is taken from the nodule(s) in the peritoneum, followed by an anatomopathological examination.

For patients with nodules associated with ascites (30% of cases), aspiration is performed.

3. Anatomo-pathological data

The histological examination and the anatomopathological study of the biopsy sample and the aspiration liquid have always been carried out.

The anatomopathological study of peritoneal nodules confirmed the diagnosis of epithelio-giganto-cellular granuloma with caseous necrosis in 80% of cases, while carcinosis nodules in 20% of cases dominated by gastric adenocarcinoma (60% of cases) and colorectal adenocarcinoma (40% of cases).

4. Ascitic fluid aspiration

Peritoneal fluid or lavage showed the presence of:

- Of an unremarkable liquid in approximately 90% of cases.
- Tumor cells in about 10% of cases.
- AFB in less than 1% of cases.

Operative view: American position. **Image showing a nodule of carcinosis on a parietal peritoneum.**

5. Data relating to the postoperative period

For most of the patients in our study (109 cases, namely 96.4%), the postoperative course was simple and ensured in the visceral surgery department of the HMIMV.

Passage through the post-interventional monitoring room (SSPI) was systematic for all patients.

We retained 4 cases (3.6%) of postoperative complications, in the same hospitalization, during our study; These complications were found in a patient with a tuberculosis profile.

In 3 of the 4 tuberculosis patients retained for postoperative complications, lesions were observed in the small bowel during the laparoscopic operation.

The last patient presented lesions of the sigmoid colon.
All these patients benefited from conversion and repair with favorable evolution in 3 of the 4 patients.

The last made a digestive fistula which dried up after 3 months under diet and medical treatment.

DISCUSSION

Operative laparoscopy is a surgery in its own right. As such, it imposes, in addition to specific training of surgeons in operative endoscopy, compliance with mandatory rules:
- correct installation,
- trained paramedical staff,
- appropriate instrumentation.

The position will depend on the operation, the surgeon's habits, and the possibility of conversion to laparotomy.

The creation of a pneumoperitoneum is carried out with a Palmer needle or after an open look; this time requires methodical execution in order to minimize the risk of incidents or complications.

The umbilical route is the most recommended in most cases.

In our series and because of the habits of the department on the one hand, and on the other hand the risk of the adherent abdomen, open laparoscopy was performed in all our patients..

The main indications for diagnostic laparoscopy include:
-Diagnosis of hepatic metastases of digestive cancers.
-Diagnosis of peritoneal metastases of digestive cancers (peritoneal carcinomatosis).
-Diagnosis of peritoneal tuberculosis.
-Diagnosis of adenopathies.

CT detection of hepatic metastases less than 1 cm in diameter is difficult with a sensitivity that varies between 0 and 61% [1].

In this area, the performance of MRI is not superior to that of CT.

Laparoscopy allowed the detection and biopsies of metastases less than 1 cm in diameter.

According to WATT [2], laparoscopy has an 11% higher rate of detection of hepatic metastases compared to CT; however, the entire surface of the liver cannot be observed by laparoscopy.

BLEIBERG [3] showed that out of 240 patients with hepatic metastases, laparoscopy supplemented by biopsy has a sensitivity of 80% and a specificity of 100% for diagnosis.

More recent studies [4,5] have shown an even higher sensitivity between 82 and 96.5%.

This figure seems too high because laparoscopy only shows 70 to 80% of the surface of the liver in the absence of adhesion and 11% of metastases are not on the surface of the liver [6].

In the diagnosis of peritoneal metastases, laparoscopy has shown its superiority [7].

For the laparoscopic exploration of stomach cancers, POSSIK et Al [8] reported on 360 stomach cancers a sensitivity of 83% in the detection of peritoneal metastases and 87% for hepatic metastases.

Using a similar approach, SIEWERT and AL [9] found unrecognized peritoneal carcinomatosis in 23% of 111 patients explored by laparoscopy.

TOGNARELLI [10] confirmed the superiority of laparoscopy in the diagnosis of peritoneal metastases of digestive cancer in a retrospective study of 62 patients assessed by ultrasound, CT, and laparoscopy.

GROSS [11] showed in another study on 46 patients treated for stomach cancer, that laparoscopy had avoided unnecessary laparotomy in 27 patients by revealing hepatic and peritoneal metastases.

In our series, we diagnosed peritoneal carcinomatosis in 23 patients (20%) including only one patient with hepatic metastasis.

During laparoscopy, in the absence of obvious peritoneal modules, a sample of peritoneal toilet fluid can be taken to assay for CEA (carcinoembryonic antigen).

The increase in ACE would be predictive of peritoneal carcinomatosis [12].

More recently, BRADY [13] confirmed the efficacy of laparoscopy compared to CT in 25 patients suspected of liver and/or peritoneal metastases with normal CT, and having had laparoscopy; 6 patients had hepatic metastases, and 6 others had peritoneal carcinomatosis.

In our series, laparoscopy and medical imaging do not have the same performance for the detection of hepatic metastases, on the other hand, we confirm the clear superiority of laparoscopy for the detection of peritoneal carcinomatosis.

It is certain that suspicion of carcinomatosis exists when medical imaging shows intraperitoneal effusion, especially when the context of neoplasia is known.

Moreover, it seems that ultrasound is more effective in detecting peritoneal nodules in the presence of ascites.

In some cases; only laparotomy makes it possible to check the resectability of digestive tumors, whereas an exploratory laparotomy for incurable digestive cancer exposes to high mortality and operative morbidity [14].

It is therefore important to obtain an assessment of the spread of digestive cancers, as precisely as possible before deciding to perform a laparotomy.

Diagnostic laparoscopy is of great interest in obtaining this assessment.

In our context, there is also an interest in laparoscopy in the diagnosis of peritoneal tuberculosis.

Tuberculous involvement may be secondary to the rupture of a mesenteric lymph node infected by the hematogenous route, or to infection by contiguity from genital tuberculosis or intestinal.

It most often affects vulnerable subjects.

It is evoked in front of non-specific but persistent signs, such as abdominal pain (96%), abdominal meteorism (82%), ascites (79 to 96%), fever (74%), and an alteration of the state. general.

Images showing gelatinous ascites

The diagnosis of peritoneal tuberculosis is based on non-specific biological and morphological examinations.

Examination of the ascites fluid allows a bacteriological study with direct examination and then culture.

CRP for TB antigen is a standard practice test.

The spectrophotometric assay of adenosine deaminase is proposed by some teams [15].

However, in a certain number of cases, all these examinations remain negative, and only the examination

pathological tissue fragments obtained by surgical exploration allow the diagnosis.

Hence this surgical approach to diagnosis can be carried out by video laparoscopy.

Laparoscopic exploration makes it possible to visualize ascites and specific lesions suggestive of the diagnosis, such as thickening of the peritoneum or whitish peritoneal granulations; this approach is less aggressive than laparotomy even if the rate of complications is around 2.7% (mainly intestinal perforation and hemorrhage).

Laparotomy should be reserved for these fibro-adhesive forms or in the event of a complication of the laparoscopic procedure.

In our series, peritoneal tuberculosis was diagnosed and confirmed histologically in 90 patients (80%), of which 4 cases or 3.6% presented postoperative complications, and no intraoperative complication was reported.

S. Robady [16] brought in a series of 4 patients of Caucasian origin aged 70 and 3 Africans including one seropositive for the HIV virus.

The presenting signs of the disease were abdominal pain associated with

fever, poor general condition, and ascites.

The standard biological and morphological examinations were of little contribution, the puncture

of ascites objectified an exudative liquid, lymphocytic and sterile on direct examination.

Laparoscopy suggested the diagnosis of peritoneal tuberculosis (peritoneal granulation), which was confirmed by histological analysis.

Mohamed Al Abkari [17], reported in another series the contribution of laparoscopy in the diagnosis of peritoneal tuberculosis, a series of 123 patients with an average age of 28 years, a clear female predominance.

The clinical picture was dominated by febrile ascites in 80.5%.

Ascitic fluid was exudative in 90% of cases, lymphocytic in 88.67% cases.

The definitive diagnosis based on peritoneal biopsies performed during laparoscopy found caseofollicular lesions in 92.4% of cases.

Under anti bacillary treatment lasting 6 months, the evolution was favorable in 90% of cases.

In our series, laparoscopy was performed on 90 patients, with the same clinical picture as the previous series, and during the exploration of whitish granulations, epithelio-gigantocellular granulomas were found on biopsy; our patients were put under anti bacillary treatment, the evolution was favorable in general.

Diagnostic laparoscopy has its indications in other pathologies which were not included in our study, in particular pancreatic cancer which has been the subject of several randomized studies in the literature.

Cuschieri [18] showed interest in laparoscopy in the staging of pancreatic cancer.

Warshau [19] showed that out of 40 patients with pancreatic cancer whose ultrasound and CT scans were negative, there were in fact hepatic or peritoneal metastases in 16 cases, laparoscopy having detected these locations 14 times.

In another study by WARSHAU [20] involving 88 patients, he also confirmed the usefulness of laparoscopy in the staging of pancreatic cancer or periampullary cancer.

We can retain from this discussion the great interest brought by exploratory laparoscopy in the diagnosis of peritoneal carcinomatosis, peritoneal tuberculosis, and hepatic metastases, which can be difficult to detect by examinations, routine biological and morphological.

CONCLUSION

Laparoscopy (or laparoscopy) is a modern surgical technique that began in 1940 with Raoul Palmer.

Far from being just one approach among others, laparoscopy corresponds to a new concept of surgery.

Its advantages are numerous: minimally invasive nature, reduced postoperative morbidity [57], aesthetic benefit, the magnified vision of the operating field, precision and

the efficiency of surgical procedures, and respect for anatomy and physiology.

At the end of our retrospective study, which focused on the analysis of 113 cases having had recourse to laparoscopy for diagnostic purposes, we can conclude that laparoscopy is of great interest in the diagnosis of peritoneal tuberculosis and peritoneal carcinomatosis.

The goal is to avoid unnecessary laparotomy if the disease is over and then to perform a palliative procedure under laparoscopy.

In the light of data from the literature, the indications for exploratory laparoscopy remain variously assessed depending on the hemodynamic state of the patient and the experience of the operators, the contraindications for the latter are rare and the complications are multiple.

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