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NON-INVASIVE DIAGNOSIS OF PERITONEAL TUBERCULOSIS (PRELIMINARY RESULTS)

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ABSTRACT

Background and Study Aims: Peritoneal biopsy remains the best diagnostic method for peritoneal tuberculosis in developing countries including Morocco, with significant morbidity and mortality. Hence the need to establish a non invasive diagnostic score of peritoneal tuberculosis from biochemical parameters measured in the ascites fluids. **Patients and Methods:** Prospective mono-centric study over a period of 4 years, including patients with isolated ascites, and those with peritoneal carcinomatosis. We tested the diagnostic value of each of the following biochemical parameters: glucose, total proteins, the Serum-Ascites serum albumin differential, LDH, total cholesterol, triglycerides, lymphocytes and Ca125 assayed in the ascites fluid; Correlate the results of these biochemical assays with those of laparoscopy to establish a non-invasive diagnostic score for peritoneal tuberculosis. For qualitative variables we calculated their sensitivity and specificity in the diagnosis of peritoneal tuberculosis compared to the reference examination. For the quantitative variables we determined the optimal threshold value for the establishment of the diagnosis of peritoneal tuberculosis by the use of the ROC curves. **Results:** 60 patients were included. The mean age was 44.5 years (16-83 years), Sex-ratio F / H 4.45. Univariate analysis of qualitative and quantitative variables revealed that disturbed VS, albuminemia <32.65g / l, ascites albumin> 22.05 g / l, ascites cholesterol> 0.69g / l, LDH> 249U / l, protidemia <69.5 g / l, Lymphocyte ascites> 375,5e / mm3 Leukocytes ascites> 545 e / mm3 represent the most discriminant variables in diagnosing peritoneal tuberculosis, with sensitivities and specificities> 75%. Multivariate analysis showed that the more parameters associated increases more we gain in specificity and positive predictive value (PPV) and one loses sensitivity and negative predictive value (NPV). **Conclusion:** The results are promising because the study was limited to 8 parameters whose diagnostic validity is satisfactory and on the basis of which the study can be continued.

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INTERDUCTION

Peritoneal tuberculosis (PT), a public health problem, is by far the most common peritoneal pathology in Morocco (Robaday, 2005). In our department it represents 6.1% of all hospitalizations, and is the second cause of ascites after cirrhosis portal hypertension (Robaday, 2005). Peritoneal carcinomatosis is the main differential diagnosis of PT.

The clinical and biological presentation of peritoneal tuberculosis being polymorphic and non-specific (Robaday, 2005), (Sanai, 2005), its diagnosis involves several non-invasive and invasive means (Sanai, 2005). More recently, new tests of high sensitivity and specificity for the diagnosis of tuberculosis have been developed, including PCR (polymerase Chain Reaction), the determination of adenosine deaminase (ADA) and interferon gamma.

However, these tests are expensive and unavailable in most developing countries, including Morocco. As a result, access to the peritoneal cavity, by laparoscopy or mini-laparotomy, and peritoneal biopsies remains the best diagnostic method but is burdened with significant morbidity and mortality (Robaday, 2005),(Sanai,2005). The objective of our study is therefore to test the diagnostic value of non-invasive, simple and inexpensive biochemical parameters, including glucose, total proteins, serum-ascites differential albumin, LDH, total cholesterol, triglycerides, serum of lymphocytes and Ca125 assayed in the ascites fluid, to correlate the results of these biochemical assays with those of laparoscopy in order to establish a non invasive diagnostic score for peritoneal tuberculosis without resorting to other expensive means and / or invasive.

Patients and methods: This is a single-centric prospective study performed within the hepatogastroenterology department in collaboration with the visceral surgery departments A and B, biology, pathology and epidemiology departmentand clinical research of Hassan II University Hospital, Fez.

Population of the study

Number of patients to include: 100 patients
Duration of the study: May 2010- April 2014

Inclusion criteria

- Patients with isolated ascites.
- Patients with ascites related to peritoneal carcinomatosis were included in the study even if the primary tumor is already known

Exclusion criteria

- Known cirrhotic patients
- Patients in whom one or more of the desired biological parameters in the ascites fluid were not available.

Course of the study: All patients were surveyed with different items to collect multiple data. These were collected and completed on a pre-established farm return (see Appendix A).The blood samples were taken during the hospitalization of the patient by trained nurses for this study. The puncture of the ascites fluid was done by physicians from the gastroenterology department informed by this study. All included patients have benefited from abdominal and pelvic ultrasound, chest x-ray, BK research in sputum, tuberculin IDR, ascitic fluid puncture with glucose assay, total protein, Serum-Ascites serum albumin differential, LDH, total cholesterol, triglycerides, lymphocytes, Ca125 and the research for malignant cells. Patients who had an associated pleural effusion had received a pleural biopsy. Conventional laparoscopy with peritoneal biopsy was performed in patients with isolated ascites of unknown origin and no contraindication to this procedure. Patients with septal ascites had benefited from a mini laparotomy for histological confirmation of their pathology. A macroscopic appearance is considered to be suggestive of peritoneal tuberculosis when laparoscopy reveals small, whitish, pinhead granulations disseminated homogeneously throughout the peritoneum. Peritoneal carcinomatosis is evoked macroscopically when large cauliflower granulations are found on the visceral peritoneum. The appearance is considered atypical when we find granulations of different sizes and distributed in an inhomogeneous way on parietal and visceral peritoneum. The diagnosis of peritoneal tuberculosis is confirmed by either finding BK in the sputum or by visualizing histology epitheloid granuloma and giant cell with caseous necrosis. In the absence of specific signs of peritoneal tuberculosis on histology, the final diagnosis of peritoneal tuberculosis is taken from the set of epidemiological, clinical, biological, radiological and macroscopic and evolutionary data.

Statistical analysis: The analysis first consisted of describing the included population. The qualitative variables were expressed as percentages (with a 95% confidence interval) and quantitative variables as averages (with standard deviations). The classical parametric statistical tests (Khi2, Student) were used to look for possible associations between the variables studied. A difference between two variables was considered statistically significant if $p < 0.05$. For qualitative variables, the sensitivity and specificity of the variable in the diagnosis of peritoneal tuberculosis was calculated compared to the baseline examination, as well as its positive and negative predictive values. Regarding the quantitative variables, for each of them we have determined the optimal threshold value for the diagnosis of peritoneal tuberculosis by the use of the ROC curves. Thus for each variable, for each value of this variable, the sensitivity and the corresponding specificity were calculated with respect to the reference examination. Thus, it was possible to establish ROC curves with study of the area under the ROC curve, AUC (Area Under the Curve). The AUC and its confidence interval were calculated. Then we tested whether the diagnosis is more efficient than a simple random rule.

In a second step we classified the studied tests in a descending order of the diagnostic performances, with two lists being obtained according to which we privileged the sensitivity or the specificity, then we studied the diagnostic performances of the associations of tests on the basis of Diagnostic performance lists and gradually increasing the number of tests used. The group of tests that gave diagnostic performance similar to the reference test was selected as a good diagnostic test for peritoneal tuberculosis. Statistical analysis was done using the Epi INFO Version 7 Software.

RESULTS

Descriptive study: During the study period, 60 patients with ascites were included, including 26 cases of peritoneal carcinomatosis or 43.3%, 26 cases of peritoneal tuberculosis or 43.3%, and 8 cases of chylosing ascites. The overall mean age was 44.5 ± 17 years (16 to 83 years), with a large female predominance with a sex ratio (F / H) of 4.45.In the group of patients with peritoneal tuberculosis (TBP Group), the mean age was 32 ± 13 years (16 to 70 years), with a large female predominance n = 23 or 88.5% of cases (with a sex-ratio (F/ H) equal to 7.66). In the group of patients with peritoneal carcinomatosis (CaP group), the mean age was 55 ± 13 years (30 to 70 years), with a large female predominance 73.1% of cases (n = 19); with a sex ratio (F / H) equal to 2.7. All patients came from the Fès-Boulemane region and were of urban origin in 88.3% of the cases (n = 53). In the TBP group, patients were of urban origin in 88.5% of cases (n = 23). Laparoscopy was performed in 21.7% of cases (N: 13) of isolated ascites, including 10 cases (38.5%) in the TBP group and 3 cases in the CaP group.

Table 1. Sensitivity, specificity of quantitative variables measured in blood

Variables	AUC	P	Threshold value	Sensibility (%)	Specificity (%)
Hemoglobing/dl	0,289	<0,005	10,6	57	23
White blood cells. e/mm3	0 ,298	0,008	9740	3,8	64
platelets e/mm^3	0 ,580	0,290	295500	65	52
TP (%)	0,536	0 ,633	86	50	53
Total bilirubinmg/l	0,236	0,000	7,5	19	58
urea (g/l)	0,221	0,000	0,35	15	50
Creatinine (mg/l)	0,320	0,018	9,75	15	61
GOT (*N)	0,309	0,012	6	0	97
GPT (*N)	0,382	0,121	6	0	97
glycemiag/l	0,327	0,022	0,9	34	41
gammaG T	0,587	0,487	18,9	50	55
protidemia g/l	0,744	0,001	69,50	73	73
serum albumin g/l	0,872	0,000	32,65	80	88

Table 2. Sensitivity, specificity of quantitative variables assayed in ascites fluid

Variable	AUC	P	Threshold value	Sensibility(%)	Specificity(%)
albumin	0,806	0,000	22,05	80	73
LDH	0,699	0,009	249	73	61
triglyceride	0,368	0,082	0,55	23	50
Glucose	0,171	0,000	0,85	15	38
Cholesterol	0,658	0,037	0,68	80	55
CA125	0,379	0 ,110	729	57	32
Leukocyte	0,654	0,042	545	53	70
Lymphocytes	0,664	0,031	375,5	73	58
Red cells	0,387	0,203	625	50	40

Table 3. Summary table of the 8 most discriminating qualitative and quantitative variables

Quantitative variables	AUC	P	Threshold value	Sensibility (%)	Specificity (%)
serum albumin g/l	0,872	0,000	32,65	80	88
Albumin in ascites	0,806	0,000	22,05	80	73
Cholesterol in ascites	0,658	0,037	0,68	80	55
LDH in ascites	0,699	0,009	249	73	61
Protidémia g/l	0,744	0,001	69,50	73	73
Lymphocytes in ascite	0,664	0,031	375,5	73	58
Leukocytes inascite	0,654	0,042	545	53	70
Qualitative variables	positive predictive value (PPV)	negative predictive value (NPV)	-	Sensibility	Specificity
VS	48,1	100		100	82,4

The biopsy was performed in 12 patients, the gesture was not completed in a single patient TBP group follows the discovery of loops agglutinated the wall and was converted into mini laparotomy. Mini-laparotomy was performed in 24 patients in total, ie 40% of cases, who presented septal ascites and / or peritoneal thickening irregular in CT with an unknown primitive or in patients whose primitive is specified but whose histological evidence could only be obtained by peritoneal biopsy. In the TBP group, it was performed in 16 cases (61.5%), and in 6 cases (23.1%) in the CaP group. Note that peritoneal biopsy, whether laparoscopic or mini-laparotomy, was not performed in 24 patients or 40% for the following reasons, following the discovery of peritoneal carcinomatosis on CT with a patient with beyond all therapeutic resources or obtaining histological evidence by biopsy of hepatic metastases or primary tumor, the primary tumor was an ovarian tumor, and in the case of peritoneal and pleural tuberculosis, histological evidence was obtained by pleural biopsy. The presence of malignant cells in the ascites fluid was confirmed in 11 patients, ie 18.3%, all of the CaP group.

Analytical study: The second part of our study consisted in specifying the non-invasive biochemical parameters assayed in the blood and the ascites fluid allowing to establish a diagnostic score of peritoneal tuberculosis. We proceeded following several steps:

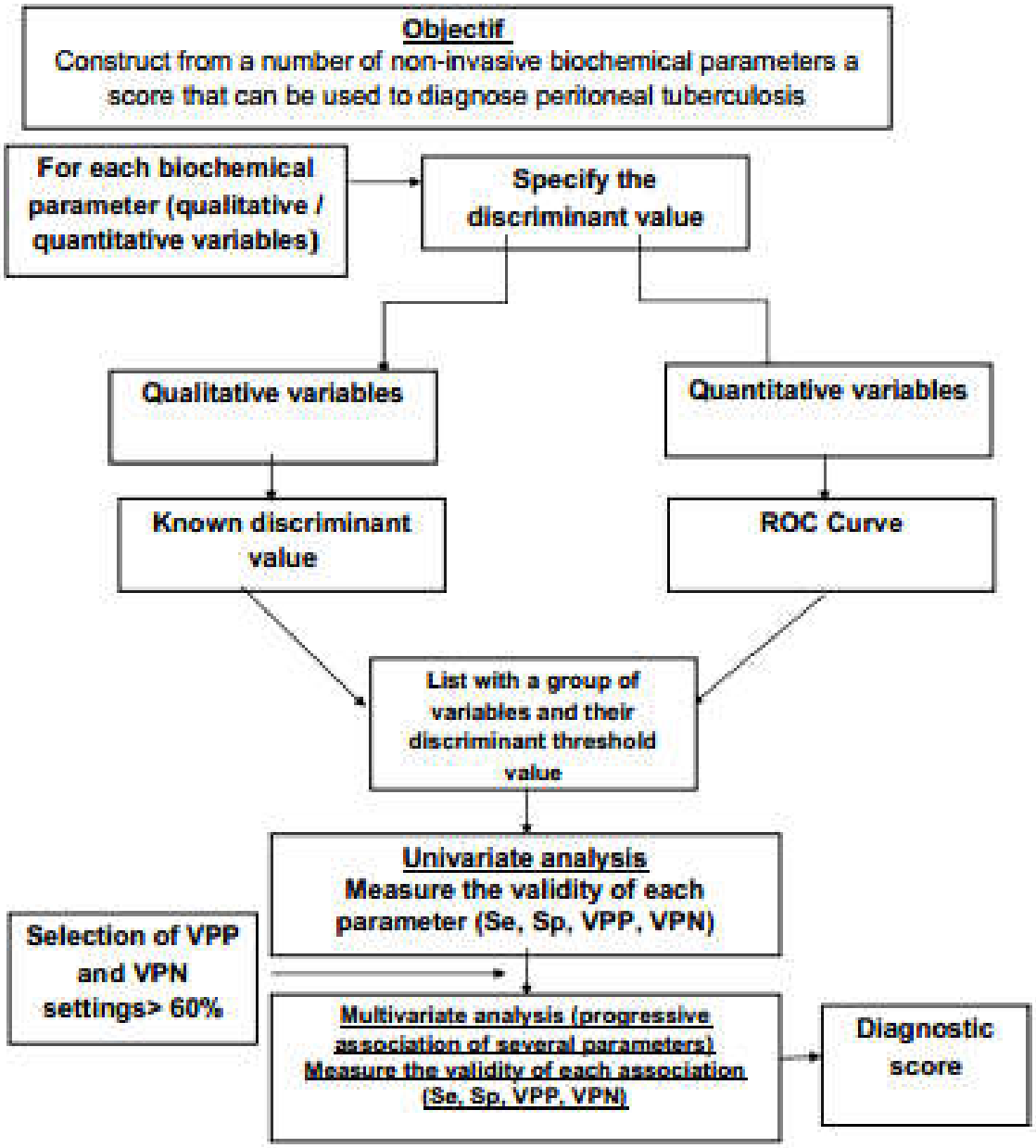
The first step was to determine a composite indicator among the biochemical parameters measured in the blood and in the ascites fluid and to compare it to the histological results of the peritoneal biopsy, ie whether or not peritoneal tuberculosis, which was considered as the reference exam.

Measurement of the validity diagnosis with a single indicator

Univariate analysis of qualitative variables: The qualitative variables studied were disturbed VS, Protein content in ascites fluid> or <20g / L and serum-ascites albumin gradient> or <11g / L. We only considered qualitative variables that had Se. and Sp> 60%. The results revealed that only VS met these criteria with a Se. at 100% and 82.4% Sp.

Univariate analysis of quantitative variables: In a univariate analysis of blood-dosed variables, there was a significant difference between the two TBP and CaP groups in terms of white blood cell (p: 0; 002), urea (p: 0.001), GOT (p : 0; 004), GPT (p: 0.043), blood glucose (p: 0.004), protidemia (p: 0.001) and albuminemia (p: 0.001). Univariate analysis of the dosed variables in the ascites fluid showed a significant difference between the two TBP and CaP groups in terms of albumin levels (p: 0.004), LDH (p: 0.002), Glucose (p: 0.001)., Ca125 p: 0.013), and lymphocyte count (p: 0.050).

Diagram summarizing the methodology of the statistical analysis



Subsequently, for each quantitative variable, we determined the optimal cut-off value for the diagnosis of peritoneal tuberculosis using the ROC curves. Thus for each variable, for each value of this variable, the sensitivity and the corresponding specificity were calculated with respect to the reference examination Table 1 and 2.Thus, it was possible to establish ROC curves with study of the area under the ROC curve, AUC (Area Under the Curve). The AUC and its confidence interval were calculated. We took into consideration the variables with an AUC> 0.6 and p <0.05. We obtained 7 quantitative variables that met these criteria: protidemia, albuminemia, and in the ascites fluid: albumin, LDH, cholesterol, leukocyte and lymphocyte levels Table 3.

Measurement of diagnostic validity with several indicators: The next step was to study the diagnostic performance of the test associations based on the diagnostic performance lists (Table III) and gradually increasing the number of tests used.

Note that the cut-off values were as follows: Albuminemia<32.65g / l, Albumin ascites> 22.05 g / l, Cholesterol ascites> 0.69, LDH> 249, Prostatitis <69.5 g / l, Lymphocyte ascites > 375.5e / mm3, ascites leukocytes> 545 e / mm3. We found by analyzing the results of the different associations made, that to gradually increase the number of associated variables, it makes either raise or decrease or does not change its PPV and NPV.

DISCUSSION

Peritoneal tuberculosis (PT) is a major public health problem in Morocco and it represents the second extra-pulmonary localization of tuberculosis after ganglionic localization (El abkari M and al, 2006). His diagnosis represents a real challenge for the clinician, on the one hand because of the large polymorphism and the non-specificity of its clinicalmanifestations, on the other hand to the limits of its

diagnostic means (Sanai and al, 2005), for this reason, the peritoneal biopsy by laparoscopy or laparotomy remains today the most reliable diagnostic method, although it is burdened with significant mortality and morbidity. It is a predominantly female affection (Robaday and al, 2005); (Sanai and al, 2005); (El abkarians al, 2006); our series finds the same data as the literature with a female frequency of 88,5%, and it is especially the appanage of young subject between 35 and 45 years (Sanai and al, 2005); (El abkarians al, 2006), in our series, the average age was 32 years. Its clinical manifestations are highly variable and cannot alone confirm the diagnosis (Kaya and al 2011). Like the latter, biology is not specific (Khadija M, Thèse N°053/2008; Dafiri R and al, 2001).

The ascitic fluid is usually with a protein content greater than 30 g/l and a predominantly lymphocyte cytological formula. Many authors confirm these data (Sanai and al 2005, El abkari and al, 2006; Khadija M, Thèse N°053/2008; Karim. M,Thèse de médecine, Rabat n° 265, 1990;De Escalante yanguela and al 2007; El Ajmi and al 1991). However, on the one hand, a fluid rich in neutrophils (PNN) can not eliminate the diagnosis of PT, indeed, and for reasons not yet well understood, patients with underlying renal failure may have a fluid of ascites rich in PNN (Sanai and al 2005,Lui SL and al, 2001). On the other hand, lymphocyte predominance can also be found in cases of ascites on portal hypertension following antibiotic therapy for ascites fluid infection (Sanai and al 2005). In our study, the lymphocyte and leukocyte levels in the ascites fluid were among the most discriminating diagnostic tests with acceptable sensitivities and specificities of the order of 73% and 58% respectively (AUC: 0.664, p: 0, 031) for lymphocytes with a threshold value> 375.5e / mm3 and 53% and 70% for leukocytes (AUC: 0.654, p: 0.042) with a threshold value> 545 e / mm3.

Regarding the biochemical study of ascites fluid, several parameters were studied in order to find the one or those allowing a non-invasive diagnosis of PT. Some have proven their effectiveness with sensitivity and specificity that reach 100%, but unfortunately are very expensive and not available in most developing countries including Morocco (PCR, adenosine deaminase assay (ADA) and interferon γ). Others, are less expensive but whose diagnostic validity remains to be confirmed.

A low glucose level in the ascitic fluid has been considered by some studies as a means of diagnosing PT (Sanai and al 2005;Bansal and al, 1998). However, this has also been found in cases of ascites portal hypertension and even in cases of peritoneal carcinomatosis (Shakil and al,1996; Aguado and al, 1990). In our series, the study of the diagnostic validity of this parameter showed, for a threshold value of 0.85 g / l, a very low sensitivity and specificity of the order of 15% and 38% respectively. As a result, there is insufficient evidence to use this test as a non-invasive diagnostic tool for PT (Sanai and al 2005). A high level of lactate dehydrogenize (LDH) in PT ascites fluid has been reported in some studies (Bansal and al, 1998;Shakil and al,1996;Hong KD and al 2011). Indeed, in cases of ascites fluid infection including PT, the high level of LDH in the ascites fluid is due to the release of the latter by the PNN (Sanai and al 2005). The study by Shkil *et al* showed that an LDH level> 90 U / l had a sensitivity of 90% but a low specificity of 14% (Sanai and al 2005); (Kaya M, 2011); (Bansal and al, 1998); (Shakil and al,1996) ; (Hong KD and al 2011). Other studies have found a sensitivity of 77% (Sanai and al 2005). In our study, thedehydrogenizethreshold value was higher> 249 U / L with a sensitivity of 73% and a specificity of 61% (AUC: 0.699, p: 0.009), results which remain acceptable compared to the data of the literature and in light of which this test was retained in our study among the most satisfactory diagnostic tests.

The diagnostic validity of peritoneal tuberculosis by the cholesterol level in the ascitic fluid has been little studied, it was mainly tested in the diagnosis of peritoneal carcinomatosis and in the differentiation between ascites of tumoral and non-tumoral origin, especially cirrhotic (Runyon, 1994);(Gulyás and al, 2001); (Timothy,2002) and the majority of these studies have shown that this test, although sensitive to peritoneal carcinomatosis, has a low specificity. The study by Sood*et al*, 1995showed that the cholesterol level in the ascites fluid in case of peritoneal carcinomatosiswas significantly higher (89.52 mg/dl) compared with tuberculous ascites (35.07 mg/ dl). At a threshold value of 54.5 mg/dl (average for peritoneal tuberculosis), the sensitivity, the specificity, the VPP and VPN for differentiating between tumor ascites and tuberculous ascites were 83.33%,89.65%, 100% and 100%, respectively. (Sood *et al*, 1995). In our series, for a threshold value of 0.68 g/l, the cholesterol level in the ascites fluid is one of the most discriminating diagnostic tests with a satisfactory sensitivity of 80% but whose specificity remains low 55% (AUC: 0.658, p: 0.037).

A level of protide in the ascites fluid> 25g / l is found in 100% of cases of TP (Sanai and al 2005). However, the sensitivity of this test decreases (42-72%) in the case of PT complicating decompensated cirrhosis (Sanai and al, 2005); (Aguado and al, 1990); (Shakil and al,1996). This rate> 25g / l is also found in 100% of cases of ascites of renal origin, in 22% of cases of cirrhosis, in 100% of cases of ascites of cardiac origin, and 95% of cases of carcinomatosis peritoneal (Sanai and al, 2005), it is a test therefore which although sensitive, lacks specificity. The results of our study confirm these data, indeed at a rate> 20g / l, sensitivity, specificity, VPP and VPN were respectively 96.2%, 23.5%, 49% and 88.9%. The serum-ascites albumin gradient has a more cost-effective diagnostic efficacy than the protide level in the ascites fluid (Sanai and al 2005);(Boyer, 2003). A rate <11g / l is found in 100% of PT cases, however, its specificity is low. In fact, its main interest is to differentiate ascites secondary to portal hypertension from other causes of ascites. This makes it possible to limit some invasive investigations to cases of ascites of unexplained origin. (Sanai and al 2005); (Boyer, 2003). The results of our study confirm these data, indeed at a rate <11g / l, sensitivity, specificity, VPP and VPN were respectively 84.6%, 41.2%, 52% and 77.8%.

Ca125 is a nonspecific marker of peritoneal inflammation that can be increased to 1400 IU/ml (Sanai and al 2005). Indeed, the elevation of serum and ascites fluid in Ca 125 has been documented in the majority of patients with peritoneal tuberculosis and has created confusion by mimicking advanced ovarian carcinoma. This test is recommended as an indirect marker for the diagnosis and progression of peritoneal tuberculosis. In fact, the serum Ca 125 drops rapidly after institution of anti-tuberculosis treatment (Sanai and al 2005); (Khadija, M Thèse N°053/2008, Fez); (Bilgin and al, 2001); (Maria and al , 2013)., In our series; at a threshold value of 729 IU/ml, the Ca 125 has a very low sensitivity (57%) and specificity (32%) (AUC: 0.379, p: 0, 110).

Few studies have examined the validity of the combination of several biochemical parameters measured in ascites fluid in the non-invasive diagnosis of PT. A study by Muhsin Kaya and al 2011, identified serum independent factors that differentiate between PT and carcinomatosis without the use of peritoneal biopsy. The presence of fever> 38 ° C, elevated serum Ca 125, normal serum CA 19-9 and ACE with predominantly lymphocytic exudative ascites had a specificity of 100%, a PPV of 100%; a sensitivity of 88.2% and a VPN of 93.8% for the diagnosis of PT.Our study is one of the first studies to evaluate the validity of the combination of several serum and serum biochemical parameters in the diagnosis of PT. The data analysis yielded 8 biological parameters out of 25 studied whose diagnostic validity was acceptable with sensitivities and specificity> 70%. On the other hand, we found by realizing the different possible associations between these parameters, that the more the number of associated parameters increases the more we gain in specificity and PPV and we lose in sensitivity and NPV. This is explained by the low power of the sample studied. In conclusion and in light of the preliminary results of this study, we can not yet develop a non-invasive diagnostic score of peritoneal tuberculosis, however the results are promising because we could limit the study to 8 biochemical parameters by determining the discriminant threshold value and this among 25 initially studied and whose diagnostic validity is satisfactory. These biochemical parameters are represented by disturbed VS, albuminemia<32.65g / l, Albumin ascites> 22.05 g / l, Cholesterol ascites> 0.69, LDH> 249, Protidemia<69.5 g / l, Ascites lymphocyte> 375.5e / mm3, ascitesleukocytes> 545 e / mm3. Based on these we can continue the study.

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Appendix A

Service d'hépato-gastro-enterologie CHU Hassan II Fès
Médecin traitant : .....
Date création du dossier : ..... /...../.....

Diagnostic non invasif de l'Ascite libre

Fiche N° : .....

I-IDENTITE

- IP..... NO .....
- Nom & prénom :.....
- Age :.....ans
- Sexe : □ Masculin □ Féminin
- Origine :.....
- adresse :.....
  .....
  Milieu : □ Urbain □ Rural
  Province :.....
- Date d'hospitalisation ...../...../.....

II-CIRCONSTANCE DE DIAGNOSTIC

- □ Augmentation du volume abdominal.
- □ Splénomégalie.
- □ Hépatomégalie.
- □ Douleurs abdominales.
- □ Dyspnée
- □ Troubles de transit.
- □ Vomissements.
- □ Amaigrissement.
- □ Asthénie.
- □ Anorexie.
- □ Syndrome fébrile.
- □ Sueurs nocturnes.
- □ Signes pulmonaires.
- □ AUTRES :.....
  .....

III-ANTECEDANTS

- □ ATCD personnel de tuberculose pulmonaire.
- □ ATCD personnel de tuberculose péritonéale
- □ FDR transmission Hépatites virales
- □ ATCD personnel de Néoplasie
- □ ATCD de Cardiopathie
- □ ATCD de Chirurgicaux
- □ ATCD Gynéco-obstetricaux
- □ Habitudes Toxiques : alcool :.....
- □ Habitudes toxiques : Tabac :.....
- □ ATCD Familiaux :
- □ Autres .....
- □ **Evolution des signes :**
  - o inférieur à 1 mois
  - o 1 mois – 6 mois
  - o supérieur à 6 mois

IV-EXAMEN PHYSIQUE

- □ Circuionlations veineuses collatérales abdominales
- □ Diastasis des muscles droits
- □ Déplissement de l'ombilic.
- □ Hernie ombilicale.
- □ Matité déclive dans les flancs
- □ Epanchements pleuraux
- □ OMI
- □ Toucher vaginal : □ normal □ masse latéro-utérine.
- □ Toucher rectal .....
- □ Hépatomégalie.
- □ Splénomégalie.
- □ Aires Ggres
- □ Autres.....

V-BIOLOGIE

- □ VS perturbée □ oui □ non
- □ Hémoglobine .....g/dl
- □ Globules blancs ...../ mm3
- □ Plaquettes ..... ./ mm3
- □ TP .....%
- □ TCA.....
- □ Bilirubine T .....mg/l
- □ Urée.....g/l
- □ Créatinine.....mg /l
- □ GOT ....N GPT .....N
- □ Glycémie .....g/l
- □ Albuminémie ....g/l
- □ Gammaglobulines :.....
- □ Protides totaux :.....g/l
- □ Sérologie virale B : 1- positive 2- négative 3-NF
- □ Sérologie virale C : 1- positive 2- négative 3-NF
- □ Auto-immunité : 1- positive 2- négative 3-NF
- □ Protéinurie de 24h

VI- ETUDE DU LIQUIDE D'ASCTE

Aspect liquide : □ jaune citrin □ sérohématique
□ louche □ purulent □ laiteux

- □ numération des leucocytes
- □ numération des lymphocytes
- □ numération des globules rouges
- □ Biochimie systématique +++
- □ - Le taux de protides totaux dans le liquide d'ascite :
- □ -pauvre en protide < 20 g/l
- □ -riche en protide > 20 g/l
- □ - le taux de fibrine .....g/l
- □ - glucose.....g/l
- □ - cholestérol total .....g/l
- □ - albumine : .....g/l
- □ Le gradient d'albumine (taux d'albumine dans le sérum – taux d'albumine dans l'ascite) > 11 g/l < 11g/l
- □ LDH :.....
- □ Triglycérides :.....
- □ Ca125 :.....

VII-RADIOLOGIE

RX POUMON :

- ☐ épanchement pleural : ☐ oui ☐ non ☐ NF
- ☐ signes spécifiques de tuberculose pulmonaires
- ☐ aspect en lâché de ballon
- ☐ autres :

ECHOGRAPHIE ABDOMINOPELVIENNE + DOPPLER DES VAISSEAUX ABDOMINAUX

- ☐ Ascite libre :

1- Abondante 2-Moyenne 3-minime.

- ☐ Tronc porte dilaté :
- ☐ Présence de dérivations :
- ☐ Splénomégalie :
- ☐ Granulations péritonéales :
- ☐ Adhérences :
- ☐ Epaississement péritonéal :
- ☐ Anses agglutinées :
- ☐ Foie :

1- Hétérogène 2-homogène 3-masse

- ☐ Echo-doppler abdominal

TP : 1- normal 2- anomal 3-Non fait

VSH 1- normal 2- anomal 3-Non fait

- ☐ - les ovaires : droit gauche

TOMODENSITOMETRIE ABDOMINOPELVIENNE :

- ☐ Faite :
- ☐ Non faite :
- ☐ Résultats :.....

.....

FOGD : 1-faite 2- non faite

Si faites résultats :.....

.....

VIII-LAPAROSCOPIE

☐ Faite ☐ non faite.

Si faite :

1- granulations en tête d'épingle uniformément répartis sur le péritoine.
2- Granulations de grande taille inégalement réparties sur le péritoine.
3- Adhérences fines.
4- Adhérences épaisses.
5- Biopsies faites.
6- Incidents.
7- autres :.....

IX- LAPAROTOMIE

☐ faite ☐ non faite.

Si faite :

1- granulations.
2- Adhérences.
3- Anses agglutinées.
4- Autres :.....

X- EXAMEN ANATOMOPATHOLOGIQUE

- ☐ Biopsie péritonéale :
- ☐ Recherche de cellules néoplasiques dans le liquide d'ascite :.....

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XI- DIAGNOSTIC FINAL

- ☐ Tuberculose péritonéale
- ☐ Carcinose péritonéale
- ☐ Cirrhose
- ☐ Autres :.....

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XII- TRAITEMENT

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XIII- EVOLUTION

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