

COMPUTERIZED AXIAL TOMOGRAPHY IN THE EVALUATION OF GYNECOLOGIC PELVIC MASSES

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The pelvis can be accurately examined with computerized axial tomography (CAT): it has enough adipose tissue to give a clear picture, the reliability of which is also contributed towards by the relative lack of artifacts.

The aim of this work was to retrospectively evaluate the advantages and the limitations of computerized axial tomography as a first observation investigation in patients with a clinical finding of 'pelvic mass of uncertain nature'.

MATERIAL AND METHODS

We evaluated 57 patients, all of whom referred to us with a clinical diagnosis of suspected pelvic mass; patients who had already undergone other instrumental examinations, such as ultrasonography, were excluded from the study in order to avoid altering the reliability by performing accelerated examinations.

All the examinations were performed with a tomographic unit, Delta 50 FS, with a scan time of 18 seconds and that simultaneously gives two sections, each 13 mm thick. CAT results were then compared with those obtained intra-operatively or with the final diagnosis, based upon the successive clinical course observed in patients that were not submitted to operation.

RESULTS

To determine the reliability of CAT we considered separately four different diagnostic stages: 1) presence or absence of a mass; 2) density of the mass; 3) site or organ of origin; and 4) nature of the mass (benign or malignant).

Where a mass was present, a high diagnostic accuracy was reached with CAT, with 54 correct diagnoses being made in 57 cases (diagnostic accuracy of 95%) with only 3 false negatives, due to a false picture given by motion artifacts; there were no false positives. In 11 cases the diagnosis of "no mass" was made, and the false positives made on the basis of the clinical examination were mainly due to misleading symptoms, especially in obese patients.

SUMMARY

The Authors retrospectively evaluate the advantages and limitations of CAT in 57 patients presenting suspected gynecologic pelvic masses.

CAT showed great accuracy in identifying the presence or absence of the mass (only 3 false negatives and no false positive) whereas it diagnosed the nature of the lesion correctly only in 19 cases.

In 41 cases the CAT provided clinically significant information adding to those of the gynecologic examination.

Despite some limitations, CAT has proven to be a useful and accurate method to diagnose and evaluate suspected gynecologic masses before the surgical intervention.

The density of the masses was correctly determined in 42 out of the 46 cases in which a mass had been diagnosed (diagnostic accuracy of 91%).

With the third parameter (determination of the site or organ of origin), we obtained a diagnostic accuracy of 63%, with 29 correct diagnoses out of 46, 10 incorrect and 7 indeterminate.

Finally, in the determination of the benign or malignant nature of the mass, only in 19 of the 46 patients with a mass was the hypothesis correct, in 7 cases it was incorrect, and in 20 cases, indeterminate. The diagnostic accuracy was thus 41%.

DISCUSSION

The utility of CAT in the evaluation of abdominal and pelvic disease has already been reported elsewhere⁽⁴⁾. Our results confirm the high accuracy of the method in the identification of masses suspected at the clinical examination. It is necessary, moreover, to stress that frequently CAT allows us to also locate small masses that are occult at the clinical and traditional radiologic examinations.

With computerized tomography it is possible to determine accurately the density of pelvic masses^(1,2). Although, in the majority of cases, the simple densitometric datum does not allow an exact diagnosis of the nature of the masses, it does allow typification of the mass as liquid, solid, adipose or of mixed densities, and to thus limit the spectrum in eventually reaching a differential diagnosis⁽²⁾.

The relatively low reliability of CAT in the determination of the site or organ of origin of the mass is due to the difficulty involved in distinguishing between masses with an adnexal, and those with a uterine origin. This applies above all to the larger masses. In these cases, it is opportune to bear in mind that echotomography can be more accurate than CAT

because the former uses not only transverse section images, but also longitudinal images⁽⁵⁾.

With computerized tomography we found it difficult to distinguish between benign and malignant tumors. CAT, in fact, allows one to put forward a correct diagnosis of the nature, on the basis of an evaluation of the density, only of cysts with a liquid density and in cases of teratomas and dermoid cysts of the ovary; in these cases the adipose tissue allows a clear picture and sometimes a mass of hair can be seen floating in the sebaceous liquid⁽⁶⁾.

On the other hand, where masses are solid or mixed, it is not possible to distinguish between benign and malignant masses on the basis of simple densitometric findings. In these cases, therefore, any diagnosis must be based upon morphologic criteria as well as clinical data and medical history and it is necessary, above all, to search for signs of spread to nearby organs and metastases in the abdominal area, liver and lymphnodes^(7,8). It must be born in mind that the presence, not the absence, of these findings is important in reaching a differential diagnosis.

In conclusion, we confirm that CAT is a highly accurate technique in the densitometric identification and evaluation of pelvic gynecologic masses; it is less reliable in the determination of the organ of origin of the mass, and only in less than half of the cases it is possible to have a reliable indication of the nature of the mass. Moreover, in many cases echotomography, a less expensive examination free from ionizing radiations, gave results equal to those obtained with CAT in the identification and characterization of the pelvic masses⁽⁵⁾.

Notwithstanding these limitations, CAT is a useful and accurate method in the preoperative diagnosis and evaluation of patients with suspected gynecologic pelvic masses.

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