ELSEVIER

The Journal of Emergency Medicine, Vol. xx, No. x, pp. xxx, 2009

0736-4679/09 $–see front matter

Letters to the Editor

□ ABDOMINAL PALPATION WITH OU MC MANIPULATION (APOM) FOR WOMEN WITH ACUTE ABDOMEN CAUSED BY PELVIC INFLAMMATORY DISEASE: A PILOT STUDY

□ **To the Editor:**

Abdominal palpation is an important procedure for identifying the location of abdominal tenderness in women with an acute abdomen, and is used to narrow the differential diagnosis. However, the proximity of intra-abdominal organs can cause significant overlap of abdominal pain. The high frequency of gynecological diseases in women of childbearing age further complicates differentiation of the source of abdominal pain. Thus, routine lower abdominal palpation (LAP) has limited utility for excluding pelvic organ diseases in this setting. We report a manipulation to augment the routine LAP in diagnosing pelvic inflammatory disease (PID).

Similarly, bimanual pelvic examination has poor inter-examiner reliability, low specificity, and low sensitivity for the diagnosis of PID in women with abdominal pain, and several studies have shown its predictive value to be no greater than chance (1–3). In the case of lower abdominal pain in women, isolating the central hypogastric area by means of manual pressure along a line from the subumbilicus to the femoral arterial canal of the inguinal area (abdominal palpation with Ou MC manipulation, APOM) to isolate pelvic organs from other abdominal organs may facilitate differentiation of pain arising from pelvic organs (4). For this study, tenderness that is more prominent or localized inside the central hypogastric area (see Figure 1, middle section of the abdomen isolated from the bilateral iliac regions by APOM) is considered to indicate pelvic organ disease.

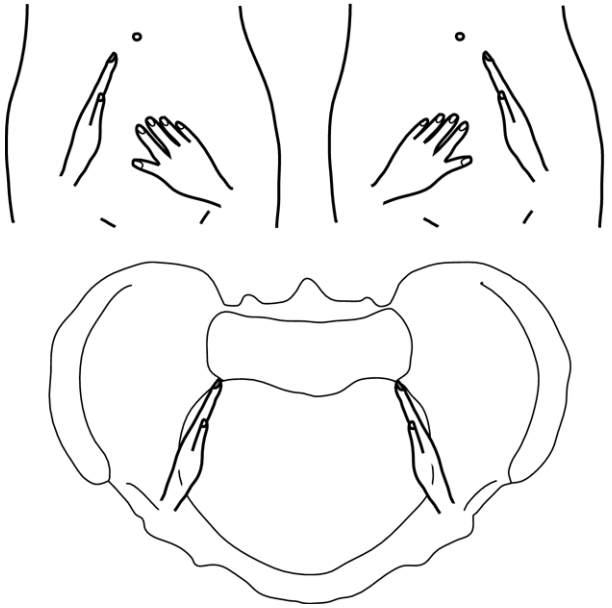

Figure 1. Abdominal palpation with Ou MC manipulation (APOM). The edge of one hand is placed along a line from the subumbilicus to the femoral arterial canal of the inguinal area, pressing against the pelvic wall to better isolate the pelvic organs (uterus, adnexae, and urinary bladder) in the hypogastric area; the other hand is used to palpate either side. A pelvic organ disease is suspected if the tenderness is more prominent or localized inside the central hypogastric area (the middle section of the abdomen, isolated from the bilateral iliac regions by APOM). Tenderness that is more prominent outside the central hypogastric area excludes pelvic organ disease.

We conducted a pilot study that included 68 women with a final diagnosis of PID who presented consecutively from January 2006 through January 2009. The mean age of the patients was 32.7 (SD 10.2) years; 61 were of childbearing age (15–45 years old) and 2 were over 50 years of age (56 and 61 years, respectively). Women with an acute abdomen routinely receive the following investigations: complete blood count with white blood cell differential, urinalysis, pregnancy test and abdominal ultrasound. In addition, an abdominal radiograph or computed tomography (CT) scan is performed before gynecological examination in an emergency setting. The gynecological examination includes APOM, bimanual pelvic examination, vaginal speculum inspection, and transvaginal ultrasonography (TVS).

In this pilot study, PID was documented in patients who met one of the three minimum criteria for PID, along with the additional criterion of cervical mucopurulent discharge, as defined by the United States Centers for Disease Control and Prevention (CDC) (5). However, in patients with central hypogastric tenderness but no pelvic tenderness on bimanual pelvic examination, PID was confirmed with fluid-filled tubes or tubo-ovarian complex evident on CT scan or TVS (per CDC standards). All of the final diagnoses of PID in the 68 women

in this study were made after exclusion of competing diagnoses, to comply with the high pretest probability of having laparoscopically diagnosed PID by an analysis of Lund data, and a substantial clinical improvement in 3 days after initial therapy, to comply with the CDC guideline for the final verification of PID (5,6).

Of the 68 women with acute abdominal pain, 100% exhibited more prominent or localized central hypogastric tenderness on APOM and received a diagnosis of PID. Seven patients had no definite tenderness on bimanual pelvic examination, but exhibited fluid-filled tubes or tubo-ovarian complex lesion consistent with PID on TVS or CT scan or both. The bimanual pelvic examination indicated PID in 61 of these patients (90%). Thus, APOM yielded greater sensitivity for PID than did the bimanual pelvic examination ($p = 0.013$, McNemar test).

APOM in this study showed higher sensitivity than bimanual pelvic examination for localizing pelvic pain. These two examinations evaluate the pelvis in different positions, so their results would be expected to differ. With APOM, the central hypogastric area is isolated by pressing the hand against or near the true pelvic ring to isolate the pelvic organs as much as possible, reducing the influence from other abdominal areas to more accurately identify the most tender area. In this way, APOM separates the abdominal cavity into two compartments to identify and compare tenderness respectively, and categorizes the abdominal pain as being within or outside the central hypogastric area to locate the diseased organ. Abdominal palpation examines the abdominal cavity on a continuum in which overlap of signs is extremely common and may make it difficult to locate the diseased organ.

Bimanual pelvic examination seems to be a limited screening test for conditions affecting the female upper genital tract, even under the best circumstances. It is also an insensitive examination for adnexal diseases (2). In this study, 6 patients with a final diagnosis of PID exhibited no pelvic organ tenderness on bimanual pelvic examination. All of them had fluid-filled tubes or tubo-ovarian complex in the adnexal area, which might not be accessible on bimanual pelvic examination, whereas APOM can approach the abdominal area over adnexae effortlessly (2,4). Thus, APOM was able to locate diseased pelvic organs not easily assessed by bimanual pelvic examination.

This study has several limitations. First, the APOM was studied only on a population of patients with a final diagnosis of PID, and it should be studied in a prospective and blinded fashion in an undifferentiated population of women presenting with lower abdominal pain. There were a limited number of patients and examiners, and inter-rater reliability was not formally assessed. Therefore, it is unclear at present whether the results will generalize to other settings.

The predictive value of LAP or bimanual pelvic examination for PID has been found to be poor; thus, PID is often missed in clinical examinations (1–3). In this study, APOM showed with competence in exactly locating diseased pelvic organs. Thus, APOM has the potential to lead to a faster and more accurate clinical diagnosis of PID for women with an acute abdomen. However, this was a pilot study and the findings warrant further investigation.

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doi:10.1016/j.jemermed.2009.08.051

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