

Diagnosis of Primary Ovarian Burkitt Lymphoma. A way to avert surgery

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Abstract

Kegel's exercise is the cornerstone of noninvasive treatment for UI as it strengthens the muscular components of urethral supports by employs a small number of isometric repetitions at maximal exertion. Aim of the **study:** The study aimed to assess effect of Kegel and breathing exercise on obstetrical history of elderly women with urinary incontinence.

Design: A quasi-experimental study design was utilized in this study (one group pre and post-test).

Sample: A purposive sample was selected and this study was performed on 100 Menopausal women diagnosed with stress urinary incontinence. Setting: gynecological and urological outpatient clinics Beni-Suef university hospital. Tools: Data was collected using 1) a structure interviewing questionnaire schedule, 2) Pelvic floor muscles exercises checklist.

Results: 70% of the studied sample got delivered more than three times while 56% of them aborted from 1-3 times. Regarding type of delivery, 66% of them delivered spontaneous vaginally, while 29% delivered by cesarean section. 33.3% of women who experienced 1-3 pregnancies reported that their frequency of urinary incontinence is once a week or less often compared to only 14.3% of women who had more than three pregnancies.

Conclusion:

It reveals a negative correlation between deep breathing and kegel exercises adherence and severity of stress urinary incontinence and a positive correlation between number of gravidity and parity and frequency of urinary incontinence with statistical significant association were found.

Recommendations: Health education about the correction of misconceptions about urinary incontinence, which can be an effective means of bringing incontinent women into contact with health care center for early appropriate intervention.

Key words: elderly women; kegel and breathing exercise; obstetrical; urinary incontinence

Introduction

Burkitt lymphomas (BL) are a rare and aggressive subtype of B-cell non-Hodgkin lymphoma (NHL) arising from translocation of the myc gene on chromosome 8[1-3]. They are fast growing and have a doubling time of 24 hours[4,5]. The three types of BL include sporadic, endemic, and immunosuppression-related. The endemic subtype is prevalent in sub-Saharan Africa and Papua New Guinea and is said to be closely related to the higher incidence of plasmodium falciparum and Epstein-Barr virus (EBV) infections [6-11]. BL accounts for up to 50% of NHLs in this part of the world [12]. The incidence of BL in Africa is about 50 times higher than in the U.S.[9], estimated at 3-6 cases per 100,000 children per year[13]. It most commonly presents with jaw or facial bone masses but may also involve extranodal sites like bone marrow, peripheral blood, meninges,

testes, ovary, kidney, and breast[14]. Sporadic BL sometimes referred to as the non-African type, is rare, and occurs worldwide. It accounts for 1-2% of lymphomas[14] affecting 2-3 per a million persons per year in the U.S. and Europe[12,15,13]. Sporadic BL mostly presents with abdominal tumors and can also involve extranodal sites[14,17]. Immunosuppression-related BL is seen in HIV or post-transplant patients. It most commonly involves the lymph nodes but can involve the bone marrow or peripheral blood[14]. Primary ovarian Burkitt is a rare manifestation of this disease and still poses a diagnostic challenge. Most often, the diagnosis is made following surgery[18,23]. Following a total abdominal hysterectomy and bilateral salpingo-oophorectomy (TAH/BSO) for a 23-year-old with primary ovarian

Burkitt lymphoma at our centre, we resorted to an algorithm[22] which was used in the diagnosis of subsequent suspected cases.

We prospectively reviewed the medical records of 4 patients diagnosed with ovarian BL at our hospital within 15 months, to identify similarities in clinical and paraclinical presentation.

Methods

Case summaries

Patient	Patient 1	Patient 2	Patient 3	Patient 4
Age (yrs.)	23	12	23	26
Gravid formula	G1P1001	G0	G0	G3P3003
Presenting Symptoms and duration	2weeks of painful abdominal distension	3 weeks history of abdominal distension	3 weeks history of painful abdominal distension	2weeks of abdominal distension
Other signs and symptoms	Early satiety	Nausea, vomiting, weight loss, early satiety and frequency	fever	Fever, anemia, early satiety
Involved ovary	Bilateral	Left	Right ovary	Right ovary
Other organ system involvement (via CT, USS, cytology of CSF or bone marrow)	none	none	none	Hepatic nodule on CT
Ascites	Present	Present	Present	Present
Appearance of ascitic fluid	Bloody	Bloody	Bloody	Bloody
Cytology on ascitic fluid	Lymphocyte predominance	Lymphocyte predominance	Lymphocyte predominance, with diffuse chromatin patterns, scant blue-gray cytoplasm, and numerous clear cytoplasmic vacuoles.	Lymphocyte predominance. Medium-sized lymphoid cells with a high NC ratio, blue cytoplasm, and small round clear cytoplasmic vacuoles
Ovarian mass Fine needle aspiration(cytology)	No	No	discohesive, monomorphic population of atypical small to medium-sized lymphoid cells with round nuclei evenly dispersed chromatin, and scant dark blue cytoplasm. Numerous small round clear cytoplasmic vacuoles are evident. Macrophages with ingested nuclear material are present. Blue cytoplasmic fragments are evident in the background. AHNL favor BL.	discohesive, monomorphic population of atypical small to medium-sized lymphoid cells with round nuclei evenly dispersed chromatin, and scant dark blue cytoplasm. Numerous small round clear cytoplasmic vacuoles are evident. Macrophages with ingested nuclear material are present. Blue cytoplasmic fragments are evident in the background. AHNL favor BL.
Core biopsy; Touch imprints	None	monomorphic round cell neoplasm with scattered tangible-body macrophages. Tumor cells are medium-sized with high NC ratio, round nuclei, nucleoli, and blue cytoplasm with numerous small clear cytoplasmic vacuoles. Cytoplasmic fragments are present in the background with numerous	None	None

		vacuoles. AHNL consistent with BL.		
Histopathology	ovarian tissue was replaced by a monomorphic, discohesive, small round cell neoplasm with numerous tingible body macrophages giving a "starry sky" appearance at low power. The tumor cells had indiscernible cytoplasm, an immature chromatin pattern, and one or more nucleoli. The peritoneal implants were composed of the same tumor. ANHL favor BL	Consistent with touch imprints (fig 4)	None	None
TB test (gene xpert)	Neg	Neg	Neg	Neg
HIV status	Neg	Neg	Neg	Neg
AFP (0-20ng/ml or <5.8IU/ml)	0.5IU/ml	2.96IU/ml	7.9ng/ml	5.60IU/ml
β HCG (<5IU/ml or 0-5mIU/ml)	0.100miu/ml	Negative pregnancy test	< 2IU/ml	<2miu/ml
CA125 (<35U/ml)	6.13U/ml	Not done	Not done	1499
LDH	Not done	Not done	Not done	Not done
Uric acid (2.4-5.7mg/dl)	Not done	8.21	8.3	25.5
Ultrasound scan	Left adnexal mass; 13.9cm x 7.9cm x 10.8cm and 10.1cm x 11.0cm x 12.4cm on the right, mild splenomegaly	Huge intrabdominal complex mass	Huge hypoechoic right adnexal mass 14.14x12.17x15.46cm	Solid hypoechoic right ovarian mass 8.9x 7.5x8.2cm
CT scan	Not done	solid abdominopelvic mass arising from left ovary, measuring 16x12x24cm with necrotic components and mild enhancement	Huge pelvic mass and ascites	Pelvic mass with signs of peritoneal carcinomatosis and a hepatic nodule
Surgery before diagnosis	TAH/BSO	None	None	None

Discussion

Within the 15 months, between the first and the last case, 129 cases of lymphoma were diagnosed at our hospital pathology lab. 80.6% (n=104) were based on cytology while 19.4% (n=25) were based on histology. 46.5% (n=60) of these cases were Burkitt lymphoma, which is similar to the 50% described by Hämmerl et al [20]. BL patient ages ranged from 2-60 years, with a mean age of 13.2 years. We noted a male predominance of 60% (n=36), similar to what is reported by Mbulaiteye et al and Hämmerl et al. Primary ovarian Burkitt lymphoma accounted for 3.1% (n=4) of all lymphomas and 6.7% of BL cases. All 4 patients presented with bloody ascites with lymphocytic predominance on cytology. Bloody ascites evoke several differentials including but not limited to benign and malignant intrabdominal tumors, with or without carcinomatosis, and hemorrhagic

pancreatitis [23,24]. Ovarian carcinoma has been identified as a more frequent cause of bloody ascites [25]. Historically, needle aspiration of ovarian masses was discouraged for fear of seeding the tumor. Needle aspiration is thought to breach the tumor capsule which can upstage the tumor [26]. Hermans et al discourage the use of fine needle aspiration cytology (FNAC) in girls owing to its low sensitivity and inability to exclude cancer [27]. Trimbo et al reported two cases of laparoscopic puncture of ovarian cyst with a subsequent laparoscopy showing disseminated disease [28]. Our patients presented with predominantly solid masses, which makes rupture or spillage less concerning. Ovarian FNA or biopsy is a controversial topic and there is no clear evidence so far supporting tumor seeding post FNA. In detecting malignancy, Nagamine et al reported a needle ovarian aspiration and biopsy sensitivity and specificity of 75% and 100% respectively, with a positive predictive value of 100% and a negative

predictive value of 96% [29]. They also reported some false negative results. In the face of false-negative cytology and a clinical suspicion of cancer histology or immunohistochemistry is considered. Tissue architecture following a biopsy might be required to make a diagnosis [30]. Ovarian mass biopsy is increasingly encouraged in recent literature, as it is helpful in early cancer diagnosis [31-35]. However accurate FNAC requires expertise and experience [36]. With adequate immunophenotypic information, FNA can be used to diagnose and subclassify most cases of NHL [37]. The diagnosis of BL is feasible by cytology [38], with a high degree of accuracy for lymphoma diagnosis [39]. As mentioned above, 80.6% of all lymphoma cases during the study time were diagnosed by cytology, and 96.7% (n=58/60) of all BL cases were also diagnosed via cytology. Our pathologist is very experienced in the diagnosis of BL via cytology. At our center, we do not routinely do ovarian mass aspirations or biopsies. However lymphocytic predominance in the ascitic fluid has been found to increase the likelihood of BL in the setting of an ovarian mass with all cases reported here. Even though CA 125 was elevated in one patient as reported by other authors [19,40,41], the presence of lymphocytic ascites directed further ovarian biopsy, and subsequent diagnosis was made without surgery. Peritoneal tuberculosis (TB) is a possible major cause of lymphocytic ascites [42-44] in our setting. However, all patients had negative TB tests either via acid-fast stains or gene experts of ascitic fluid or both. *Ravindranath et al* reported lymphocytic predominance in the ascitic fluid of a 16-year-old male with lymphomatosis from BL [45]. Facing a fast-growing ovarian tumor in a young female in a malaria endemic zone, we found our previous algorithm [22] very helpful in guiding the diagnostic process. The prognosis of cancer is better with early diagnosis [46]. Given a fast-growing and curable tumor like Burkitt lymphoma, early diagnosis is the key to survival [12,47]. In a resource-limited setting such as ours, the waiting period for histology results ranges from 2-4 weeks while cytology is usually available within 24hrs. Even with the increasing burden of cancer in our setting, Cameroon only recorded 0.28 pathologists and 0.23 cytotechnicians per 1 million people in 2016 [48]. Given the limited number of pathologists, some hospitals have resulted in telepathology. However, it still takes about 80 days to have the results handy following a procedure [48]. There is a need to exploit basic yet safe ways of making cancer diagnoses in order to improve survival.

Limitations: We do not have a large enough sample size to make any firm conclusions. However, faced with high ascitic fluid lymphocyte counts with predominately solid ovarian mass in a young woman living in a malaria endemic region, the use of FNA of the mass may be an alternative to ovarian biopsy or removal after a wider scale study.

Conclusion: Considering the cost to the patient, time to onset of treatment, and patient quality of life, cytology might offer enormous benefits in the diagnosis of primary ovarian BL.

Conflicts of interest: None

Informed consent was obtained from all patients for the publication of this case series and any accompanying images. IRB approval was gotten from CBCHSIRB

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