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Progressive Leiomyomatosis Peritonalis Disseminata (LPD): A Case Report and Review of Literature

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Abstract

Leiomyoma, a localized benign tumour often arises from the uterus and from time to time is seen to arise as localized tumour from other intra abdominal visceral organs with smooth muscle. The generalised occurrence of well-differentiated and completely benign leiomyoma in all organs covered by peritoneum is exceedingly rare.
Just over 100 cases have been reported in the world literature, mostly in premenopausal ladies with hyper estrogenic conditions. This case is unique for several reasons. It is the first reported in Africa and from a Negroid lady. Our patient has no obvious hyperestrogenic condition and despite having been castrated, the disease pursued a progressive course. This case also highlights the limitations imposed by poverty on those working in the third world.

Key Words: Leiomyomatosis Peritonealis Disseminata, Progressive Leiomyomatosis.

Introduction

Leiomyomatosis peritonealis disseminata is a very rare disease of benign nature[1,2]. It is usually assymptomatic and often found incidentally at surgery where it is absolutely indistinguishable from disseminated carcinomatosis peritonalis[2,3]. It is seen mostly in young ladies of reproductive age and usually linked to one form of hyperestrogenic condition or another[1,3]. Very rarely does it become progressive[4] or undergo malignant transformation[5].

In this communication, we present the first documented case in Nigeria and an individual of the Negro race. This case occurred in a young lady with no known hyperestrogenic condition and has an unusual feature of being progressive with possible malignant transformation and fatal out come despite the fact that this lady has had hysterectomy and bilateral salpingo-oophrecetomy.

Case Report

Ms O.K, hospital number 12990/02 is a 31-year-old nulli gravida who presented to our gynaecologist at a mission hospital in Enugu, Nigeria in May 2002. She had a 7-year history of abdominal distention and a six months history of weight loss and abdominal pain. She had undergone what she was told was a fibroid operation 14 years prior to presentation following which she developed secondary ammenorrhea. She did not know the details of the surgery. Her urinary and bowel habits were normal

On examination the patient was asthenic, weighed 51Kg with a blood pressure of 120/80mmHg and pulse rate of 76 beats per minute. Her abdomen was enlarged with multiple mobile tumour masses palpable in both the abdomen and the pelvis. The masses within the lower abdomen appeared hard and fixed. Vaginal examination showed a circumcised labia and clitoris with blindly ended vagina. Several mobile tender tumour masses were palpated deep in the pelvis per vaginam.

On investigation, she had a normal haemogram. Abdominal ultrasound scan showed absent uterus and ovaries. The whole abdominal cavity was filled by multiple hyperechoic tumour masses with small amount of free flowing peritoneal fluid in between the coils of intestine. The liver was noted to be irregular with blunt edges but no defined parenchymal masses within it. Our working diagnosis was peritoneal carcinomatosis possibly secondary to ovarian carcinoma.

She was worked up for exploratory laparotomy and possible cytoreductive surgery. At surgery, the whole abdominal cavity including the pelvis and subphrenic space was filled up by rounded tumour masses of various sizes, some up to 5cm in diameter. All structures covered by peritoneum seem studded by these tumour masses including the bowels and the mesentry. There was minimal ascitis. The uterus and ovaries were absent. There were some tumour nodules on the peritoneal surface of the liver but none was palpated within the substance of the liver. At this point, cytoreductive surgery was considered unwise in view of the extensive bowel involvement that made it feel friable and hence high risk of perforation. One of the tumour masses was enucleated and sent for histology. The patient had a smooth postoperative recovery. The histology of the tumour mass is shown in figure 1 and conclusively demonstrated the tumour to be benign leiomyomatosis

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Pathology Report
Specimen consists of a hard grayish-white nodule measuring 4 x 4 x 3 cm. Cut surface is whitish with characteristic whorled appearance. There is an apparent capsule surrounding the mass. This capsule appears intact except for the area of detachment at surgery. Histology sections show tumour mass composed of a compact proliferation of spindle cells arranged in interlacing bundles. The cells have cigar shaped nuclei with blunt edges, which are generally uniform. There is scanty intervening stroma with a sparse lymphocytic infiltration. No mitosis or any other feature of atypia is identified.

Patient was followed up in the outpatient and was offered Gosserelin but she couldn't afford it. She also couldn't afford a repeat surgery. She was last seen in our hospital 3 months after the surgery with no change in her condition. Two years after her last visit in our hospital, follow up tracing to her home was done at which we learnt that she remained sick since her last visit and died a month earlier in another hospital. We could not ascertain the cause of her death.

Figure 1: Histology of biopsy specimen showing benign smooth muscle without mitotic figures or atypia.

Discussion
LPD is a very rare disease. Just over 100 cases have been reported in the world literature.[2] It occurs mostly in premenopausal ladies. It is linked to hyper estrogenic conditions like pregnancy, use of hormone replacement therapy and oral contraceptive pills.[1,3] Ironically, some drugs like LH-RH analogues[6] and tamoxifen[7] that are known to help in controlling the disease are some times linked to its progression. The proof of its relationship to hyper estrogenic states has been its induction in mice using estrogen followed by combined estrogen and progesterone.[3,8] There have been few reports of this condition occurring in unusual and unexplained situations not directly linked to hyper estrogenic states like in post menopausal ladies,[9] in men,[5] fetuses[10] and castrated ladies as seen this our case.[4] All these situations perhaps suggest that conditions other than hormonal influence also play some role in its aetiology The accepted histogenesis is thought to be from hormonal stimulation of multipotent cells of mullerian origin in the peritoneum.[3] Under the influence of female sex hormones and also depending on personal predisposition, these cells develop to multiple smooth muscle tumours on all surfaces covered by peritoneum. Malignant transformation is very rare but 8 cases have been reported.[2]

Our patient presented when she is already symptomatic. Most reported cases in literature are assymptomatic and are usually met incidentally at surgery.[1] It is probable that this condition existed in this patient at the initial surgery 14 years ago. The findings at the surgery at that time must have made the surgeon to do hysterectomy and bilateral salpingo-oophrectomy for the fibroid. Obviously, this surgery controlled the progress of the disease until 7 years ago when it started progressing again. The fact that this lady died eventually from possible progression of the disease will suggest a possible malignant transformation.

LPD is virtually indistinguishable from disseminated carcinomatosis or metastasizing leiomyosarcoma when found at surgery.[2] Its diagnosis is only made with histology of biopsy specimen where the benign nature is shown by presence of well differentiated smooth muscle cells and fibroblasts with absence of mitotic figures, atypia and necrosis.[2] This our case fits perfectly into this typical scenario. There is a small possibility that we were dealing with a purely metastatic well differentiated leiomyosarcoma and that the biopsy and or pathology examination missed the areas with the malignant tumour component. We however do not believe this to be the case for several reasons. The biopsy specimen was taken from the general peritoneal surface and not from within any visceral organ wall. In effect, it was taken from what was supposed to be tumour metastasis. An exhaustive pathological examination was done including obtaining a second opinion following the apparent contradiction between the operative finding and the histology picture. All the sections reviewed independently by both pathologists showed benign histology. Also, the long clinical course of this patient's illness does not suggest a malignant lesion abinitio. This patient was symptomatic of advanced abdominal pathology for 7 years before presentation to us. Her first surgery took place 14 years earlier and she survived another two years after our own surgery with tumour cachexia and widespread intra abdominal tumour dissemination.

Immunohistochemistry is very useful in the diagnosis where it will show features of smooth muscle like vimentin, smooth muscle actin, muscle specific actin and desmin.[1] Of special note is ER/PR receptor expression within the tumour supporting the influence of hormones.[1,2] In some post menopausal ladies, LH receptors are shown suggesting that the stimulation is not by estrogen but by LH/FSH which tend to be high after menopause.[7]

Conservative treatment in the form of removing or reducing the hyperstrogenic condition is recommended.[11] Other options include hysterectomy with oophrectomy to induce early menopause or use of gonadotropin releasing hormone analogues to render the lady castrate.[11] In the past, it used to be assumed that regression will occur in all cases regardless of the form of treatment given.[12] As more cases are reported, it is now obvious as in this our patient that some cases do become progressive and that this may occur inspite of appropriate treatment[4] and in a few cases they become frankly malignant.[2,13] Because of this unpredictable natural history, a close follow up of all cases is advised after removing the hyper estrogenic condition to ensure that the disease regresses.[14] Such cases should be monitored by repeated ultrasound scan or Ct scan. Further pregnancies and use of oral contraceptive pills should be discouraged in premenopausal ladies. If it becomes recurrent or progressive, LH-RH analogues should be used and if it is still not controlled, surgical castration and radical tumour debulking should then be done. Chemotherapy has been recommended in confirmed malignant cases but because of the rarity of this setting, the exact regime and protocol is not defined at all.[13]

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