Case report

Incidental fallopian tube mesothelioma diagnosed at time of elective bilateral salpingectomy for sterilisation: A case report

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ARTICLE INFO

Keywords:
Mesothelioma
Salpingectomy
Fallopian tube

1. Introduction

Mesothelioma is a well-known malignancy arising from mutations in mesothelium, a simple squamous epithelium arising from the embryonic mesoderm (UpToDate topic, 2016). Pleural mesothelioma is most well known and is most commonly linked to an exposure to industrial pollutants, primarily asbestos. There are also documented cases of primary mesothelioma arising in the parietal peritoneum and the genital tract though these are rare, representing only 10–15% of mesothelioma cases in the United States annually (UpToDate topic, 2016). Mesothelioma is a very uncommon primary tumour of the female genital tract, usually with a benign natural history though with the potential for benign recurrence locally (Schneider et al., 1961). On literature review, the first documented case appeared in 1913 (Horn and Leqis, 1951) with most documented cases occurring in the uterus corpus (Mourali et al., 2010). However, cases have infrequently been reported in fallopian tubes with three specific cases found as described in Table 1 (Malpica et al., 2012; Paoletti, 1951) and an additional 11 cases reported in a literature review of an early publication in 1951 (Horn and Leqis, 1951). In one case series of genital tract mesothelioma, the disease was shown to primarily affect young Caucasian women with a mean age of 30 (Schneider et al., 1961) whilst another case series showed a mean age of 48.6 (Malpica et al., 2012). It is commonly asymptomatic and is often discovered incidentally at time of laparotomy/laparoscopy for other indication as in this case, or at autopsy (Bofetta, 2007) (Figs. 1, 2 and 3).

There is a strong relationship between asbestos exposure and extra-pleural mesothelioma. This is a case report of a 42 yo female who underwent elective laparoscopic bilateral salpingectomy for unwanted fertility, which returned an incidental finding of a localised mesothelioma.

2. Patient history

The patients’ gynaecological history was G4P4 with menarche age 16, previously regular menstrual cycles and four uncomplicated vaginal births. She consulted the department requesting permanent sterilisation as well as reporting a three-month history of menorrhagia. There was no history of endometriosis and pap smears were up to date with nil abnormal. She was not sexually active at the time of consult and nil contraceptive use. A transvaginal ultrasound demonstrated a normal anteverted 80 CC uterus with two small fibroids and endometrial thickness of 5 mm. She underwent hysteroscopy and curettage which returned normal histology.

She reported no recent weight loss, night sweats or fevers and no
other symptoms concerning for malignancy. There was no identified asbestos exposure. Past medical history was significant for hypothyroidism and medicated depression. There was no previous surgical history. Family history included possible endometrial cancer in her mother and no family history of mesothelioma.

The laparoscopic bilateral salpingectomy was performed uneventfully with no gross abnormality of the Fallopian tubes or peritoneum and no evidence of endometriosis noted intraoperatively.

3. Histopathological findings

Macroscopic examination revealed a white nodule measuring $10 \times 6$ mm adjacent to the fimbriae of the left fallopian tube.

Microscopic examination revealed a discrete, relatively well-circumscribed though non-encapsulated lesion composed of cuboidal/polygonal cells with no evidence of significant cytological atypia. The cells were arranged in sheets with areas of papillary and tubular architecture. The papillary structures had hyalinised stromal cores. Up to 3 mitotic figures per 10 high-power fields were identified. No atypical mitotic figures were seen. Ki67 showed a low proliferative index of <5%. No atypical mitoses were evident. Scattered psammoma bodies were present.

There appeared to be some hyaluronic acid production, which was highlighted with Alcian blue and largely lost with hyaluronidase pre-digestion. The tumour cells expressed calretinin, CK 5/6, D2 40 and WT 1 and were negative for BerEP4, mCEA, oestrogen receptor, progesteron receptor and desmin. The lesional cells retained expression of BAP1 and demonstrated diffuse intermediate to strong expression of PAX 8.

This lesion was regarded as benign and of mesothelial origin but was not typical of a well-differentiated papillary mesothelioma of the peritoneum. A provisional diagnosis of mesothelioma was made based on the morphology and the immunoperoxidase results (Chen et al., 2012; Goldblum and Hart, 1995a; Sugarbaker et al., 2016). Expert opinions from a Respiratory Pathologist and mesothelioma expert were also obtained. The consensus was that this is a mesothelial lesion and as this appeared clinically to be a localised lesion with no other evidence of intraperitoneal disease, a diagnosis of localised mesothelioma was made (Goldblum and Hart, 1995a).

4. Management

The patient was referred to a tertiary Gynaecology department for review. Their advice in conjunction with the reporting pathologists

Table 1
Previously documented cases of fallopian tube mesothelioma and outcomes.

| Patient/year | Presentation | Histopathology | Treatment |
|--------------|--------------|----------------|-----------|
| 1 (Chen et al., 2012) 1961 | TAH LSO for Lower abdominal pain, dysmenorrhea and dyspareunia | Cystic mesothelioma of uterine fundus, left and right adnexa, cul-de-sac, and sigmoid colon; endometriosis of left ovary and peritoneum N.B. Patient presented with widespread disease involving fallopian tube | Diagnosed at time of planned TAH LSO. Nil evidence of recurrence at 3 years |
| 2 (Kawai et al., 2016) 1961 | Mesothelioma of the Salpinx | Nil details available | Planned hysterectomy. Nil further treatment |
| 3 (Laury et al., 2010) 2012 | Incidental finding during hysterectomy for leiomyoma | Chronic xanthogranuloma-tous salpingiosis | Planned hysterectomy. Nil further treatment |

Fig. 1. Non-encapsulated lesion adjacent to fallopian tube.

Fig. 2. Tumour with solid sheets, papillary and tubular areas.

Fig. 3. Tumour with tubular and papillary architecture, with cuboidal uniform appearing cells and scattered concretions consistent with psammoma bodies.
was to proceed to total hysterectomy and bilateral oophorectomy, which the patient underwent under the Gynaecology team with no complications. Histopathology from this returned normal uterus with which the patient underwent under the Gynaeoncology team with no was to proceed to total hysterectomy and bilateral oophorectomy, and consideration of pelvic washings may be safest with recommendation to proceed to total hysterectomy and bilateral oophorectomy and desmin make these tumours less likely in this case.

Mesotheliomas of the female genital tract are currently described as a tumour of uncertain malignant potential primarily due to only a small number of reported cases and limited knowledge of its’ biological behaviour (Malpica et al., 2012; Rivera, 2008). The differential diagnosis includes mesothelial hyperplasia, malignant mesothelioma, and serous tumour of low malignant potential (Malpica et al., 2012).

In this case, no specific risk factor could be identified, as the patient had no confirmed history of asbestos or other pollutant exposure, no previous history of radiation, no endometriosis and the tumour demonstrated retention of normal BAP1 activity.

In this literature review no cases of malignant mesothelioma were found originating from a fallopian tube primary. In a case series of 26 patients with well-differentiated papillary mesothelioma there was one report of recurrence (Malpica et al., 2012) (primary site omental mesothelioma at time of resection of ovarian cystadenofibroma). The patient was asymptomatic and the recurrence was discovered incidentally during a later colectomy for colon adenocarcinoma. However, several cases of mesothelioma at other peritoneal sites and uterine mesotheliomas have demonstrated malignant potential. These are largely symptomatic lesions which involve multiple sites, are associated with ascites, and have high-grade nuclei (Goldblum and Hart, 1995b). As such, until further evidence can be determined into the natural history of fallopian tube mesotheliomas specifically, a conservative approach may be safest with recommendation to proceed to total hysterectomy and bilateral oophorectomy and consideration of pelvic washings (Goldblum and Hart, 1995b). This report aims to contribute to the study of rare neoplasms of the female genital tract so that a more accurate incidence and natural history may be determined.

Patient consent

Written informed consent was obtained from the patient for publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Conflict of interest statement

The authors declare that there are no conflicts of interest.

Acknowledgements

The authors would like to acknowledge.
Dr. Kim Oliver (Histopathologist, The Princess Alexandra Hospital).
Dr. David Godbolt (Respiratory Pathologist, The Prince Charles Hospital).
Dr. Sonia Glebe (Histopathologist, expert in mesothelioma diagnosis, Flinders Medical Centre – South Australia) for their assistance in the reporting of the histopathology for this case.

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