

# Advanced cervical cancer in an institutionalized postmenopausal woman with Down's syndrome

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## Citation

S Al Inizi, W Chaudry, F Aghrab, N Dalal, K Gilmour. *Advanced cervical cancer in an institutionalized postmenopausal woman with Down's syndrome*. The Internet Journal of Gynecology and Obstetrics. 2008 Volume 11 Number 1.

## Abstract

**Background:**The occurrence of cancer in Down's syndrome (DS) is unique with a high risk of leukemia, lymphoma and, globally underrepresented, solid tumors as compared with those in the general population in all age groups. Cervical carcinoma can present with post menopausal bleeding in sexually active women.**Case:**We report a rare case of advanced cervical carcinoma in an institutionalized non sexually active post menopausal woman with DS who presented with post menopausal bleeding.**Conclusion:**Cervical carcinoma being a solid tumor is very rare in women with DS and it is rare in non-sexually active women<sup>1,2</sup>. Care givers must pay particular attention to signs and symptoms in non-verbal women with intellectual disability. Irregular vaginal bleeding warrants additional evaluation with full gynecological examination.

## INTRODUCTION

With a life expectancy similar to the general population, greater numbers of patients with DS are being diagnosed with cancer. Learning difficulties and medical co-morbidity are common in this population and may lead to individualized oncological treatment<sup>3</sup>.

The pattern of occurrence of malignant disorders in people with DS is unique and may serve as a model in the research for leukemogenic and tumor suppressor genes on chromosome 21<sup>4</sup>. The incidence of solid tumors is extremely rare or nonexistent<sup>1</sup>. Cervical carcinoma is extremely rare in non-sexually active women and has not been reported before in women with DS.

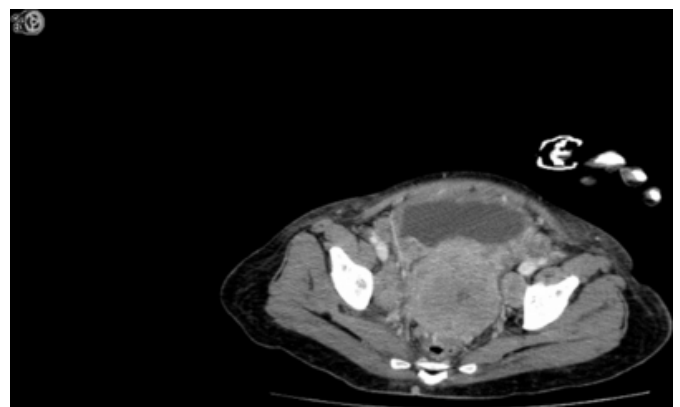
## CASE REPORT

A 49 year old institutionalized woman with DS was referred by her GP with a history of abnormal vaginal bleeding first noticed by her carers two weeks previously. She lived in a care home and was fully dependant for all daily activities since early childhood. She was menopausal having had no periods for two years and did not have sexual intercourse before according to her care givers. She had no previous medical problems apart from hypothyroidism and some behavioral problems. History was taken from the woman's care givers, examination was extremely difficult as she was uncooperative. She was examined in the theatre under general anesthesia and was found to have a very tight

hymenal ring and vagina which was completely obliterated by a large friable infiltrating mass reaching 2 cm above the introitus which was biopsied. Computerized tomography (CT) scans of the abdomen and pelvis showed a large complex mass of 11x 6x 5 cm arising out of the pelvis and extending to the vagina, bladder, rectum and perineum with the uterus and ovaries not seen separate from this mass. There were enlarged pelvic, para-aortic, external iliac and groin lymph nodes with bilateral hydronephrosis. Large tumor metastasis noticed in the liver and right lung with significant mediastinal lymphadenopathy making the stage of cancer to be stage IV (Figures 1,2).

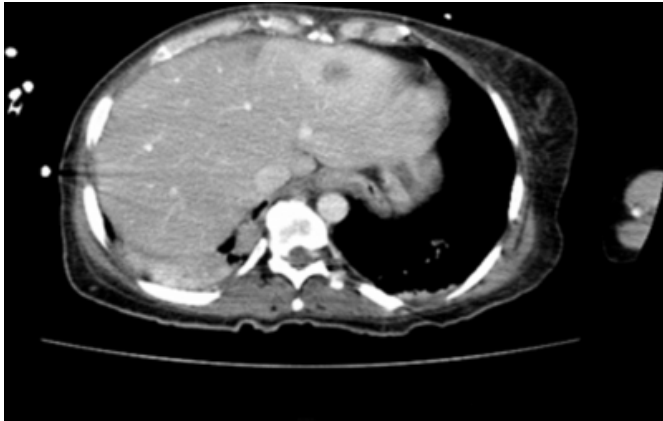
## Figure 1

Figure 1: CT pelvis showing the mass infiltrating the uterus, rectum, bladder and vagina



**Figure 2**

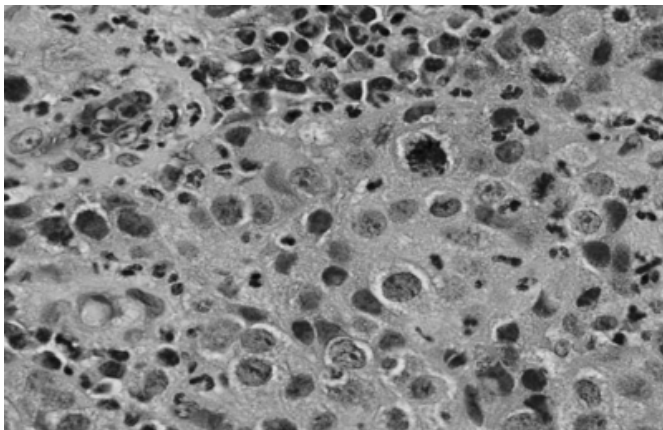
Figure 2: CT scan of abdomen showing tumor metastasis in the liver.



Histology showed a poorly differentiated squamous cell carcinoma of the cervix (Figure 3). However, HPV DNA testing was not performed.

**Figure 3**

Figure 3: Histology confirming poorly differentiated squamous cell carcinoma.



The case was discussed at the gynecological multidisciplinary meeting and in view of the widespread advanced malignancy together with consideration of the psycho-social issues associated with DS, the decision was for supportive palliative care.

**DISCUSSION**

DS or trisomy 21 is a chromosomal disorder caused by the presence of all or part of an extra 21<sup>st</sup> chromosome. Often DS is associated with some impairment of cognitive ability and physical growth as well as facial appearance. Cancers and immune related diseases such as hypothyroidism and celiac disease are increased in DS<sup>5</sup>, DS has a particular tumor profile with some tissues more affected by malignant diseases, such as hematopoietic tissues and germ cells, with

others protected, such as central nervous system, renal and epithelial tissue<sup>4</sup>. There is a 20 fold increase in leukemias with a very low incidence of malignant solid tumors. However, there is an excess of lymphomas, gonadal and extragonadal germ cell tumors like seminomas<sup>4</sup>. The currently prevailing perception that sporadic cancer in DS arises as a result of somatic mutations in a cell that lead to its uncontrolled proliferation has been replaced by the suggestion that cancer is triggered by the critical role of cells and tissues in the microenvironment where carcinogenesis occurs<sup>6</sup>. Others suggested that tumorigenesis in gynecologic malignancies was associated with the presence of oncogenes on chromosome 21<sup>7</sup>. Cervical cancer has not been studied in women with DS. Studies should concentrate on trying to find a link between chromosome 21 and cervical cancer if there is any, however, there may be a possibility of identifying some tumour suppressor genes on chromosome 21 which may represent a role in immunity against viral infection such as HPV making cervical cancer very rare in DS similar to breast cancer<sup>8</sup>.

The decreased risk of solid tumors and secondary cancers in DS was attributed to the increased susceptibility to apoptosis which may result in cell death rather than malignant transformation after major cell injuries<sup>9</sup>. Solid gynecological tumors, although very rare, have been reported in women with DS including endometrial and ovarian carcinomas and leiomyoma<sup>4,10,11,12</sup>.

Cervical carcinoma has not been reported before in women with DS. There is a low prevalence of abnormal cervical cytology in institutionalized women with intellectual disability and the optimal interval of cervical cancer screening in this group of women needs to be investigated<sup>13</sup>.

Cervical cancer is common in sexually active women. However, it has been reported in virgins and nuns both as a primary and as a secondary tumor<sup>214</sup>. There is a significant uncertainty regarding this patient's sexual behavior especially the history was taken from her care givers and we should not ignore the possible fact that the cause of her cervical cancer may have been Human papilloma virus (HPV) exposure from sexual abuse in the past as we can't be completely sure regarding any woman's virginity despite that this woman had a tight hymen on examination.

Risk factors for HPV infection are primarily related to sexual behavior and transmission through means other than sexual intercourse are very rare<sup>15</sup>. HPV lesions, however, have been detected in virgins who have never had sexual

intercourse. This is attributed to vertical transmission, fomites and skin-to-skin contact <sup>16</sup>.

We report a very rare case of an institutionalized postmenopausal woman with DS who presented with advanced cervical carcinoma. To our knowledge, this is the first case reported in the literature.

## CONCLUSION

Post menopausal bleeding in women with DS should necessitate particular attention with full gynecological assessment as cervical cancer can be one of the reasons.

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