

CASE REPORT

Labial Adhesion with Repeated Femur Fractures in an Elderly Woman

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ABSTRACT

Background: Labial adhesion is a condition usually seen in childhood, a period of low estrogen. However, it may also occur rarely in the elderly.

Case presentation: An 82-year-old woman was admitted to the orthopedic department with repeated femoral fractures and was accidentally found to have labial adhesions.

Discussion: Labial fusion is one of the conditions that is sometimes left unnoticed and not adequately cared for. Postmenopausal women are more prone to osteoporotic fractures due to low estrogen levels, which may increase the risk of labral adhesion.

Conclusion: In clinical practice, it is important to know that the decrease in estrogen after menopause is a risk factor for osteoporosis and labial adhesion. The mechanism of labial adhesion is not fully understood, and further research is needed to elucidate it.

KEY WORDS

labial adhesion, femoral neck fracture, estrogen

INTRODUCTION

Labial adhesion is caused by the labia sticking together. It most often occurs in infants, and about 2% of female children before puberty (sexual maturity) are affected¹⁾. In infants, frequent skin irritation, such as diaper rash, can cause the labia to stick together. This condition usually occurs at least partially in prepubertal women with low estrogen levels. This is called primary labial adhesions. However, women who have just given birth or have reached menopause may also develop labial adhesion. This type is called secondary labial adhesions. We have experienced the case of an elderly woman with repeated femoral fractures and coincidental complications of labial adhesion. The actual cause of secondary labial adhesion is not completely known, but may be related to low levels of estrogen. Fractures and osteoporosis are also associated with low estrogen levels. So, we present the case and discuss the complications of labial adhesions and fractures.

CASE PRESENTATION

An 82-year-old fertile woman with no difficulty in her daily life came to our hospital because she stumbled lightly and could no longer walk. X-rays revealed a left periprosthetic femoral fracture. She had previously undergone total hip arthroplasty 5 years earlier for a left femoral neck fracture due to a fall. An attempt was made to insert a urethral balloon catheter for surgery, but the external urethral opening could not be identified. The vulva appeared to be a thin white line or bridge of tissue covering the urethral and vaginal orifices (Figure 1). Since urine

was observed leaking from a pinhole in the vulva, not the external urethral opening, a diagnosis of labial adhesion was made. The gynecologist confirmed that urine flow was secured through the pinhole-shaped opening. However, considering the dysuria under general anesthesia, the pinhole area was detached and the urinary flow was temporarily improved. After removal of adhesion and release of the external urethral opening, osteosynthesis using a plate and wire was performed without

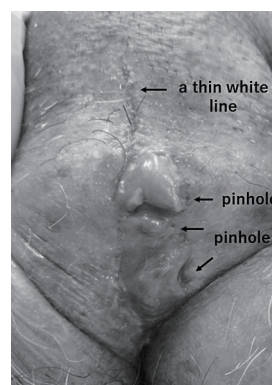


Figure 1: Condition of the patient's vulva

The vulva was covered with fused labia and looked like a white line, and the urethral and vaginal openings were not visible. Based on these findings, a diagnosis of complete labial adhesion was made.

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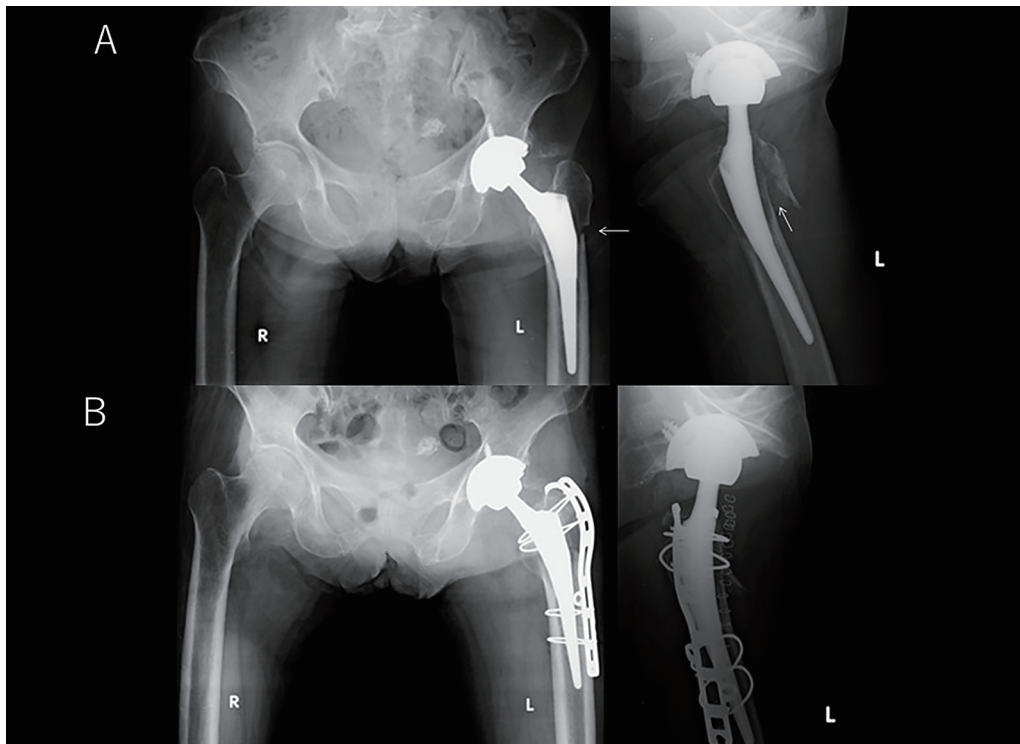


Figure 2: Radiographs of the patient's femur before and after surgery

[A] Left periprosthetic femur fracture (indicated by white arrows). [B] Osteosynthesis with plate and wire.

insertion of a urinary catheter. Pre- and postoperative x-rays of the femur are shown in Figure 2. Postoperatively, the patient had no urinary problems and was able to walk after about a month of rehabilitation, and was discharged from the hospital. Regarding the indication for plastic surgery for labial adhesion, the patient was to be followed up at a specialized medical institution after discharge.

DISCUSSION

Even when labial adhesion is present in the elderly, it often causes no symptoms and may be discovered by chance. If it does cause symptoms, they may include pain in the vaginal area, especially when straddling an object (e.g., riding a bicycle), difficulty urinating and dribbling urine, or repeated urinary tract infections². As in the present case, the absence of an external urethral opening may be noticed during insertion of a urethral catheter for general anesthesia, resulting in the accidental discovery of a labial adhesion. Thus, adhesions can usually be seen by a caretaker or health care professional. Diagnosis is made by looking at the vulva. Complete labial adhesions are rarely encountered after menopause, and their actual cause is not fully understood, but, as with primary labial adhesions, low levels of estrogen may be involved³. The patient had extremely low estradiol, below the limit of measurement. As estrogen levels decline with age, osteoclasts become more active and are unable to keep up with the activity of osteoblasts, which build bone, increasing the risk of fractures⁴. After the fracture healed, surgery for labial adhesion was considered. Patients with recurrent fractures with low estrogen levels may have hidden asymptomatic labial adhesion.

Unfortunately, it is not known what mechanism causes the skin to heal, assuming that low estrogen is a risk for labial adhesion. We do know that estrogen has a traditional effect on the wound healing process⁵. Estrogen is important for wound healing, but its effect on wounds must be balanced because both low and high levels of estrogen slow inflammation and over-suppression of inflammation is not good for wound healing. Wound healing is a physiological process that involves three sequential and overlapping phases of hemostasis/inflammation, proliferation, and remodeling to maintain the integrity of the skin following accidental or surgical trauma. Any disturbance or imbalance in

these processes may result in abnormal wound healing and skin fusion. Numerous molecular biological and clinical data support that estrogen affects normal skin homeostasis and wound healing. For example, estrogen deficiency in postmenopausal women is detrimental to the wound healing process, particularly inflammation and remodeling, but exogenous estrogen therapy can reverse these effects. Estrogen deficiency may cause fusion of neighboring skin mucosa that should not normally fuse. Although estrogen is one of the essential hormones for wound healing, its function is complex and it is speculated that it may regulate gene expression related to various wound healing processes. Because estrogen regulates cell signaling at different levels, it may act at several stages of wound healing, just as it regulates pain at several opposite levels⁶. Understanding the role of estrogen in skin may provide additional opportunities to develop estrogen-related therapies to labial adhesions.

In conclusion, the postmenopausal decline in estrogen was considered a risk factor for fractures and labial adhesion because it affected not only bone metabolism but also processes related to wound healing.

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