CASE REPORT

Femoral Arterial Blowout Post Groin Recurrence in Vulvar Carcinoma – Novel Endovascular Management

Pallipuram Seshadrinathan Bhageerathy¹ · Anitha Thomas¹ · Vinotha Thomas¹ · Shyamkumar N. Keshava² · Abraham Peedicayil¹

Received: 22 July 2015 / Accepted: 19 April 2016 / Published online: 23 April 2016
© Indian Association of Surgical Oncology 2016

Introduction

Recurrent vulvar cancer in patients who have already exhausted surgery and radiation therapy poses a therapeutic dilemma. Haemorrhage due to the rupture of femoral artery following tumour invasion is an extremely rare complication in patients with groin recurrence and is usually a terminal event if not managed aggressively. We report a unique case where life threatening bleeding due to femoral blowout was managed successfully with minimally invasive endovascular covered stent deployment.

Case Report

A 60 year old multiparous postmenopausal lady belonging to Class 4 Modified Kuppaswamy's socio-economic scale presented to the Emergency department of our hospital on 06 June, 2015 with a history of bleeding from the right inguinal region for the past 3 days.

In 2012, she developed an ulcer in the vulva about 6 × 5 cm extending from 5 o'clock to 9 o'clock position involving the posterior fourchette which she noticed for 3 months before

consulting a doctor. There was associated bilateral multiple enlarged inguinal lymph nodes. Vagina, urethra, clitoris and anus were not involved. A Papanicolaou smear of the cervix showed no evidence of intraepithelial lesion or malignancy. A biopsy of the lesion was done which was reported as well differentiated squamous cell carcinoma. Ultrasound scan of the abdomen and pelvis was reported as normal.

She underwent radical wide local excision leaving a margin of 2 cm from the tumour and bilateral inguino-femoral lymphadenectomy using separate inguinal incisions. Short and great saphenous veins were sacrificed on both sides. One unit of blood was transfused intra-operatively.

Post-operatively, there was wound breakdown in the right inguinal region and perineum which was managed conservatively with daily dressings and antibiotics. The wound healed by secondary intention.

The histopathology of the specimen was reported as grade II squamous cell carcinoma, warty type with moderate degree of peritumoural stromal desmoplastic and lymphocytic response. Circumferential excision margins were free of tumour with the closest margin 5 mm away and the farthest 1 cm away. Both the right inguinal lymph nodes (3/11) and the left inguinal nodes (3/10) showed evidence of metastasis with perinodal spread.

She was diagnosed to have Stage III C carcinoma vulva and was advised adjuvant radiation therapy. But she defaulted due to financial constraints.

She developed chronic lymphoedema of the right thigh post-surgery.

In March 2014, she experienced increased swelling and pain in the right leg. There were no associated sensory or motor deficits. Lower limb Doppler study done revealed

✉ Pallipuram Seshadrinathan Bhageerathy
drbhagee@gmail.com

¹ Department of Gynaecologic Oncology, Christian Medical College, Vellore, Tamil Nadu 632004, India

² Department of Interventional Radiology, Christian Medical College, Vellore, Tamil Nadu 632004, India

chronic thrombosis involving right external iliac, common femoral, proximal superficial and deep femoral veins. There was no thrombosis in the right popliteal vein. Left lower limb Doppler was normal. She took anticoagulants for 6 months.

In February 2015, she noticed a mass in the right inguinal region which progressively increased in size. Ultrasound scan showed heterogenous and vascular right iliac and inguinal lymph node enlargement suggestive of metastasis. She underwent 10 fractions of palliative radiation therapy. Six days after the tenth fraction of radiation therapy, she developed an ulcer in the right groin. There was bleeding from the same off and on for 3 days which was controlled with compression dressings before she presented to our hospital.

When she presented to our hospital on 06 June 2015, she was found to be pale and drowsy. She was tachycardic with a heart rate of 140 beats per minute and blood pressure of 90/50 mm of Hg. There was no palpable supraclavicular lymphadenopathy. Abdominal examination was unremarkable. There was a 5 × 3 cm irregular ulcer in the right inguinal region which was bleeding. The vulva and the inguinal region were scarred. Vagina was stenosed and cervix could not be felt. Her urine output was adequate. A compression bandage was applied. Her haemoglobin was 7 g/dl. Coagulation profile was normal.

She was admitted in surgical intensive care unit and resuscitation was started with fluids, blood and ionotropes.

Six hours later, she had another bout of pulsatile bleeding from the right inguinal region which did not stop after compression dressings. Her Haemoglobin dropped to 4.8 g/dl. Radiation therapist ruled out the option of haemostatic radiation in view of the arterial bleed. Vascular surgery and Interventional radiology opinions were sought and she was planned for digital subtraction angiography (DSA). By then, her bleeding parameters were deranged. After transfusing 6 units of whole blood, 4 units of fresh frozen plasma and 6 units of cryoprecipitate, DSA of the right femoral artery was done under general anaesthesia.

Endovascular Technique

Under aseptic precautions, left femoral artery was accessed and a 5F sheath placed. Over the guide wire, pigtail catheter was crossed over and the right external iliac artery cannulated. The angiography done showed frank extravasation of the contrast from the right common femoral artery through an approximately 2 cm defect with diffuse irregularity surrounding it (Fig. 1). There was only minimal flow distally in the right superficial femoral artery (SFA) and only trickle of flow in the profunda femoris artery (PFA). The guide wire was passed down into SFA and exchanged for Amplatz wire. Over the Amplatz wire, a 38 mm × 8 mm covered stent was deployed across the extravasation. As there was persistent leak distally, two more 9 mm covered stents were deployed thereby covering the entire length of extravasation (Fig. 2).

Fig. 1 DSA showing extravasation of contrast from right common femoral artery

After deployment of the covered stents, though the extravasation stopped, thrombus formed within the grafts. Hence, suction thrombectomy was done using a 6 F Fas guide catheter and the clots were removed from within the graft. Check angiogram showed restoration of flow in the distal arteries (Fig. 3). There were no post-procedural complications.

Postoperative Course

Following the procedure, there was mild serosanguinous discharge from the right groin as the patient was still in DIC (Fig. 4). After transfusing 2 units of packed red cells, 5 units of fresh frozen plasma and 7 units of cryoprecipitate, the bleeding stopped. She was extubated after 48 h and was transferred to the ward. She was put on low dose aspirin to prevent thrombus formation.

Fig. 2 Endovascular covered stent deployment covering the arterial defect

Fig. 3 DSA post-procedure showing restoration of distal flow

She was discharged after 2 days in a stable condition. Thus the minimally invasive endovascular stenting in this case of femoral blow out was both life-saving and limb saving in our patient. The progressive nature of the disease and the need for further follow up and palliative treatment was explained to the patient and relatives.

Discussion

Vulvar cancer accounts for 4–5 % of all gynaecological malignancies, the most common histological subtype (90 %) being squamous cell carcinoma [1]. Although, it is primarily a disease of postmenopausal women, the rate of vulvar cancer in the younger age group is increasing probably due to the increased incidence of human papilloma virus related premalignant lesions. The tumour is traditionally treated with radical

vulvectomy with bilateral inguino-femoral lymphadenectomy. An individualised multidisciplinary team approach in a gynaecological cancer centre employing more conservative surgery using separate incisions with post-operative radiation as indicated decreases the morbidity without compromising on survival. Postoperative radiotherapy is recommended if there are positive inguinal nodes or the disease free surgical margin is less than 8 mm as they are more prone for recurrence.

Recurrence occurs in 15–33 % of all cases of squamous cell carcinoma of vulva. The recurrences usually occur within 2 years of the primary treatment and can occur either locally in the vulva, in the inguinal nodes or distant metastasis. Local recurrence in vulva is seen in 69.5 %, groin recurrence in 24.3 %, pelvic nodes in 15.6 % and distant metastasis in 18.5 % [2]. The treatment and the prognosis depends on the extent and the site of the recurrence.

Groin recurrence after primary inguino-femoral lymphadenectomy and radiotherapy is difficult to treat and has poor prognosis. It is usually managed by a combination of chemoradiotherapy and radical surgery with plastic reconstructive procedures. Unfortunately, our patient did not have post-operative adjuvant radiation therapy to her groin.

Vascular blowout syndrome is more commonly described in the carotid circulation as a complication of advanced head and neck malignancies [3]. There are a few reports on femoral artery blowout in advanced gynaecological and penile cancers. Femoral artery blowout in a case of recurrent vulvar carcinoma is an extremely rare complication and may be due to tumour invasion, lymph node erosion, radiation therapy or tissue necrosis [4]. Femoral arterial rupture is a surgical emergency and if not managed on time can lead to limb ischaemia, exanguinating haemorrhage and death.

Vascular blowout syndromes can be classified as threatened, impending or acute depending on the amount of tumour invasion [3]. Threatened blowout is characterised by tumour encasement of the vessel and is diagnosed by angiography. Impending blowout is characterised by recurrent bleeding which can be controlled with conservative management. Acute vascular blowout presents with life threatening haemorrhage which if not managed aggressively can become a terminal event. Though clear-cut management algorithm for the management of primary vulvar carcinoma exists based on evidence, there is no standard of care available for groin recurrence complicated with femoral artery rupture due to the rarity of the condition.

There are a few case reports of femoral arterial blowout which were managed with emergency surgery with repair of the rent in the vessel followed by plastic reconstruction [5]. Conventional open surgery in these women with severe comorbidities in an area which is scarred, radiated, ulcerated, oedematous and infected carries the risk of poor wound healing. Moreover, a curative surgery is not possible in the setting of advanced malignancy. Considering the

Fig. 4 Right groin with ulcer after the endovascular procedure

hypercoagulable state and poor general condition of the patient, a major surgery involving extensive dissection and excision of the inguinal mass with vascular reconstruction and covering the defect with flap was not offered to our patient. Advances in minimally invasive endovascular reconstruction was used successfully as an effective alternative to open surgery to save the limb as well as life in our patient with significantly less postoperative morbidity.

The use of covered stent deployment by endovascular approach is mainly described for carotid blowout in head and neck malignancies in literature [3]. Endovascular techniques can be used either as an adjunct to major surgery or as sole therapy. The specific concern in this region is the potential risk of damage to the stent secondary to the transmitted flexion movements of the hip joint. Minimally invasive endovascular approach is a highly desirable, safe and effective palliative management option with reasonably good quality of life post-procedure when compared to complex and morbid surgeries in the setting of femoral arterial blowout following groin recurrence in advanced vulvar cancer.

Compliance with Ethical Standards

Conflict of Interest All authors have no conflicts of interests to declare

References

1. Gajjar K, Shafi M (2014) Invasive vulval cancer. *Obstetrics, Gynaecology and Reproductive Medicine* doi:[10.1016/j.ogm.2014.04.006](https://doi.org/10.1016/j.ogm.2014.04.006)
2. Piura B, Masotina A, Murdoch J, Lopes A, Monaghan J (1993) Recurrent squamous cell carcinoma of the vulva: a study of 73 cases. *Gynecol Oncol* 48:189–195
3. Nassiri N, Kogan S, Gibbon DG, Graham A (2015) Multimodal endovascular palliation for femoral arterial blowout in the setting of metastatic vulvar carcinoma. *Ann Vasc Surg* 29: 127.e11–127.e15
4. Trompetas V, Sandison AJP, Anderson HJ (2010) Combined open surgical and endovascular management of ruptured femoral artery from recurrent vulvar cancer. *J Gynecol Oncol* 21: 276–278
5. Panse N, Sahasrabudhe P, Kashyapi B (2012) Femoral blowout in a case of carcinoma penis. *Indian J Urol* 28:325–328