

Clinical education summary — masculinising genital affirmation surgery

During the COVID-19 pandemic, waiting lists for masculinising genital gender affirmation saw a sharp increase due to the cessation of surgeries. In December 2021, the Gender Dysphoria Service was recommissioned by NHS England, with the contract being awarded to New Victoria Hospital. The hospital subsequently inherited over 1,600 patients, who were at various stages of the pathway, falling into the following categories: 1. Waiting to be assessed, 2. Assessed and waiting for Stage 1, 3. Waiting for Stage 2 or Stage 3 and 4. Requiring revision surgery

The first surgeries commenced in December 2021 and two full-time Clinical Nurse Specialist (CNS) posts were created to support the patients through a very complex and often challenging pathway. Approximately 45 surgeries per month are performed by three Andrology Consultants and one Plastics Reconstructive Surgeon. The Masculinising Genital Gender Affirmation Service is a specialist national service, currently the only NHS service of its kind in the United Kingdom. Due to the geographical distance of the patients, additional complexities of care are created, requiring local clinicians to be involved in post-operative recovery.

As Clinical Nurse Specialists, we aim to provide information, teaching and training to raise awareness of the service to improve patient outcomes and experience. This is achieved by creating an environment of dignity and respect, and by reducing any barriers for patient access to quality healthcare. A system of best practice is created to reduce any misunderstandings with local clinicians.

The need for close collaboration with local services is illustrated clearly in a survey conducted by TransActual, where nearly 700 responses were received, and stated:

- "14% reported that they were refused GP care on account of being trans on at least one occasion
- When accessing general healthcare services, 70% of respondents reported being impacted by transphobia
- 45% said their GP did not have a good understanding of their needs as a trans person, rising to 55% for non-binary respondents. 23% of respondents said this has impacted them 'very much'
- 57% of trans people reported avoiding going

to the doctor when unwell." (Transactual, 2021).

Phalloplasty is the surgical creation of a phallus utilising a tissue flap with its associated arteries, veins and nerves. Requirements for this surgical procedure are set internationally. The World Professional Association of Transgender Health (WPATH) guidelines for adults indicate, that individuals seeking to undergo the complex procedure must display persistent gender dysphoria, have the capacity to consent to surgery, understand the effects on reproduction and options available, whilst being stable on hormones, if desired. Additionally, other possible causes for gender incongruence must be identified and excluded, and medical and mental health concerns must be well-controlled (Coleman et al, 2022). In the United Kingdom, it is a clinical requirement that each individual completes hormone therapy for two years to allow maximum clitoral growth and hair development as a non-hairy segment is required if a urethra is planned. It is a further requirement that the individual is a non-smoker with adequate subcutaneous fat and a BMI below 32, in order to create the phallus.

Both metoidioplasty and full-size phalloplasty surgery are offered in the UK. The majority of female-to-male transitioning service users, opting for genital gender-affirming surgery, choose a full-size phalloplasty.

Patients undertaking gender affirmation surgery report that their main desire is to void standing and to have the ability for penetrative sex. The phallus formed in phalloplasty does not change size when erect and requires a prosthesis for erection. Sensation develops with time; however, the retained clitoris has

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- Surgery

sexual feeling. The metoidioplasty gets a little bigger when erect, whilst usually not enough for penetration. Normal sexual feeling is retained and up to 90% are able to void standing. There is a 10% conversion rate from metoidioplasty to phalloplasty (Unpublished Data, 2024).

Phalloplasty is an umbrella term encompassing various surgical procedures, including radial artery phalloplasty (RAP), antero-lateral thigh (ALT) phalloplasty and abdominal/pubuc phalloplasty. These surgical procedures may also be accompanied by radial artery urethroplasty (RAU) or ulna artery urethroplasty (UAU).

Phalloplasty can be divided into three surgical stages:

- **Stage 1** – formation of the phallus and urethra. The urethra is integrated in the RAP and can also be integrated, in certain circumstances, in the ALT
- **Stage 1b** – is required with an RAU or UAU – in many ALTs and Pubic Phalloplasties, if standing to void is the desired outcome
- **Stage 2** – following laparoscopic hysterectomy and bilateral salpingo-oophorectomy, a Join up Urethroplasty, Vaginectomy, Scrotoplasty, Glans Sculpting and Bury Clitoris can be performed. There are multiple options within this stage and the opportunity is taken to tidy scars, repair any fistulas or strictures and, if necessary, de-bulk the phallus.
- **Stage 3** – implantation of prosthesis (erection device and testes).

There can be multiple surgeries within each stage and this article will describe the Stage 1 Phalloplasty surgery.

Stage 1: Phalloplasty surgery formation of the phallus and/or neo-urethra

Radial artery phalloplasty (RAP)

RAP is the default phalloplasty, unless a patient has preference for a different option. Skin from the arm is thin and pliable with less fat. A non-hairy segment is available for the integrated urethra and the artery runs the entire length.

RAPs are the most sensate phallus and takes 2–3 years for a full level of sensation to be complete. 10% of patients are left with no feeling, while 60% have patchy sensation and 30% have full erogenous sensation and are able to orgasm with normal masturbation (Unpublished Data, 2024). Disadvantages of the procedure include the formation of a visible scar, risks of complex microsurgery, potential hand swelling and that existing tattoos need to be considered.

In the operating theatre, the arm is marked out [Figure 1]; the average phallus is 14cm long and the urethra is an additional 3 cm. The flap is elevated under a tourniquet, the urethra tabularised and the phallus wrapped round.

Whilst the phallus is created, the pubic area is prepared, making a 12cm circumference button and locating the epigastric artery. Once in situ, the proximal end of the urethra is spatulated at the base/side of the clitoris with a small U flap of non-hairy skin to prevent stricture.

Wedges of tissue are taken from both buttock creases to form a full-thickness graft [Figure 2] to cover the tissue loss from the arm. Careful contouring prevents a step and, in healthy tissue, hair will grow which helps to camouflage the scar. Post-operatively, slouching is encouraged to prevent stress on buttock wounds and dehiscence is treated with topical negative pressure. The use of a stand-to-pee or female urinal helps prevent the dressings from becoming saturated whilst healing occurs.

Antero-lateral thigh (ALT) phalloplasty

ALT [Figure 3] is advantageous as there is a greater amount of skin and fat available from the thigh, compared with a RAP. Additionally, the feeding arteries and veins are longer, arising near the hip joint, making it possible to rotate the flap as a pedicle, under the quadriceps muscle, without disconnecting and reconnecting blood vessels. Construction for ALT is similar to a RAP, i.e. a tube within a tube, if a urethra is possible. Unfortunately,

Figure 1. Images of a) design for RAP, b) formation of urethra around a catheter, c) phallus created and d) preparation markings of donor site.

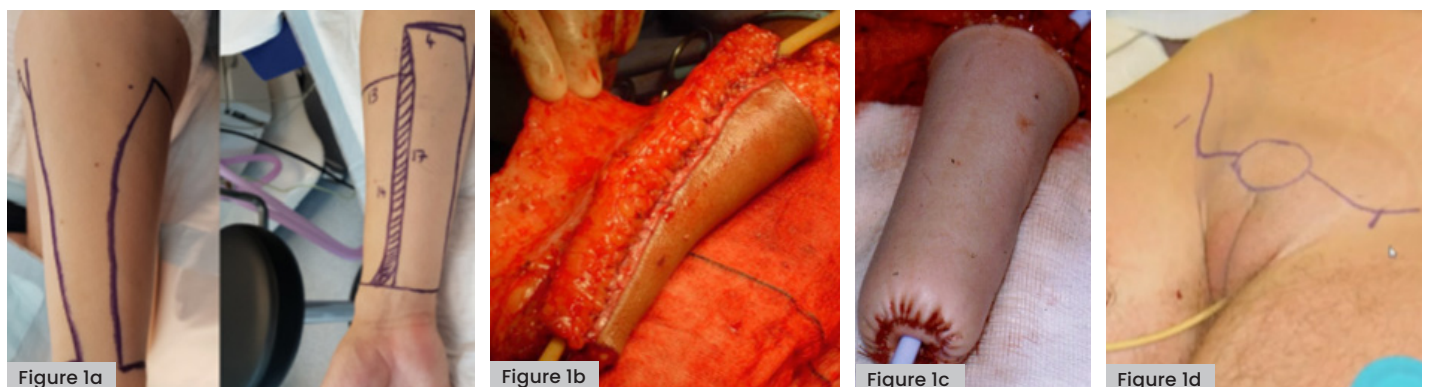


Figure 2. Image of design for buttock segments.

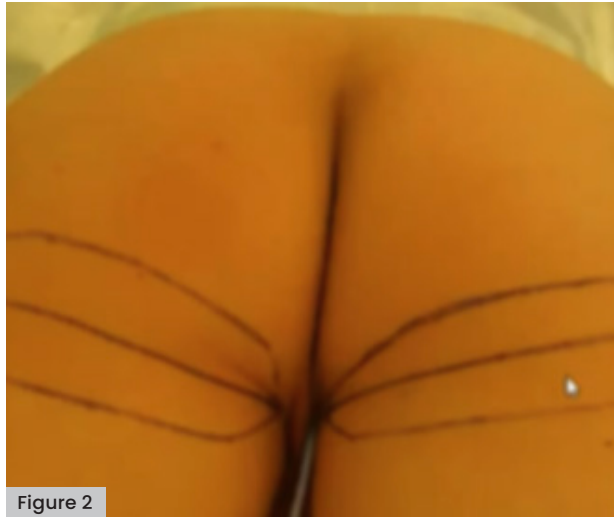


Figure 2

Figure 3. Image demonstrates ALT surgery.



Figure 3

this phalloplasty is not suitable if there have been previous knee injuries, as it can further aggravate the condition. ALT also requires a low ratio of subcutaneous fat.

If an integrated urethra is planned, a non-hairy segment is required, which may require hair removal prior to surgery. A smaller width of flap is taken if a urethra is not required. The large donor site defect is covered with a split skin graft (SSG) from the other thigh. As the SSG heals it will constrict, which pulls the bulging exposed thigh muscles into place. If there is too much tension within the graft, it can be left open to heal by secondary intention.

Healing of the thigh is similar to a bad sports muscle injury; two day bed rest is required immediately following surgery, and exercise is limited to walking only, for a six-week period.

Abdominal/pubuc phalloplasty

Abdominal/pubuc phalloplasty [Figure 4] was traditionally the main type of phalloplasty surgery, in which abdominal flaps were utilised as the classic method of phallus construction. The first total phallic construction was attempted in 1936 by Bogoras (Garaffa et al, 2010).

The rectangular abdominal flap has continuity with the clitoris and pubic area.

Once mobilised and brought downwards, the flaps are folded into a tubular shape. Rotating the flaps helps to prevent the phallus from becoming tethered upwards, as the phallus is supported upright for three weeks, to improve blood flow. Lateral hip skin flaps are then rotated, to cover the skin deficit. There is less risk of phallus loss as blood supply and nerves remain connected; therefore, hospital stay is reduced to four days. The abdominal scars are less conspicuous and easily hidden in underwear.

The main complications of abdominal/pubuc phalloplasty are haematoma and seroma. Phallus base sensation is normal, yet there is no sensation in the distal half, as the nerve is cut during flap elevation. Loss of pubic hair occurs due to abdominal skin being mobilised and brought downwards. Wound issues can also occur due to stress on the suture lines causing dehiscence.

Once healed from the initial surgery, the size and shape of the phallus can be adjusted surgically, to thin down and give extra length to allow comfortable penetrative sex. Uneven scars and tethering can also be addressed.

Radial Artery Urethroplasty (RAU)

RAU [Figure 5] is required to complete

Figure 4. Images showing the a) design, b) elevation and c) formation of pubic/abdominal phallus.

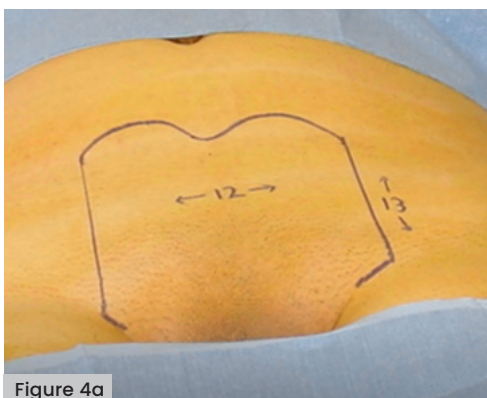


Figure 4a

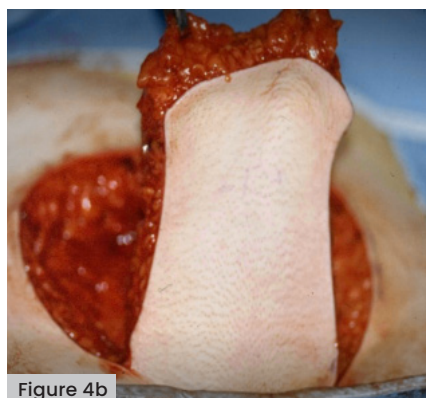


Figure 4b

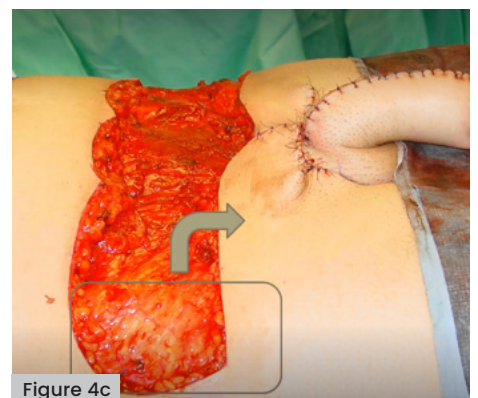


Figure 4c

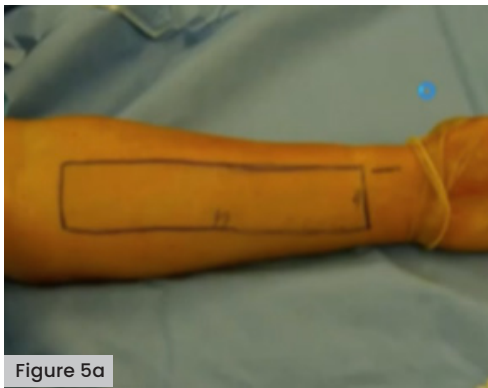


Figure 5a

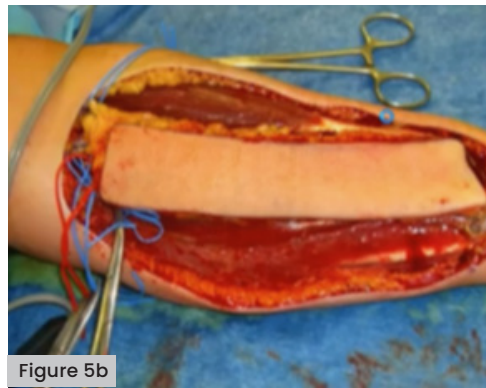


Figure 5b



Figure 5c

Stage 1 in all pubic phalloplasty procedures and ALT where an integrated urethra was contraindicated. These procedures result in a smaller scar compared to RAP and, in 80% of cases an additional nerve can be acquired, resulting in a 60% chance of distal sensation in the phallus (Unpublished Data, 2024). Hair removal may be required prior to surgery.

The typical graft design is 4cm wide and 3cm longer than the phallus. If surplus tissue is available, a full-thickness graft can be taken from the abdomen to re-cover the arm or a split skin graft can be taken from the thigh. Abdominal tissue is preferable as a full-thickness graft can be taken and hair growth will improve cosmetics.

Causes of Graft Failure

Common causes of graft failure following phalloplasty include:

- Smoking – cessation of smoking is required 6 months pre-operatively and post-operatively. Continuation of smoking can result in poor wound healing and phallus shrinkage. Nicotine replacement must be stopped 1 month before the surgical procedure
- Weight – being overweight increases the risk of haematoma which can compress the pedicle, therefore BMI should be below 32
- Bleeding/clotting disorders – haematology support is required before surgery; there is a separate protocol for Raynaud's Syndrome
- Polycythaemia – although this is now less common due to testosterone levels being monitored more carefully.
- 'Bad luck' – sometimes graft failure can occur as the result of 'bad luck'.

Total flap loss [Figure 6] is between 3-6% depending on the type of phalloplasty. Partial flap loss [Figure 7] is 10% with a 40% salvage rate. Major flap problems tend to happen within the first 2 weeks (Unpublished Data, 2024).

Challenges of providing a national service from a single centre

Due to the complexity of the surgeries and the logistics of patients returning home to all areas of the United Kingdom, it is vital to increase the awareness of the atypical surgeries performed, to enable local clinicians to support the patients during their recovery in the community.

It is recognised that, as a national service, the level of support required by the patients has increased. To aid local clinicians, patient passports and CarePlans have been developed and individualised for each patient, to provide full and comprehensive documentation. The patient passport [Figure 8] comprises the details of the surgery undertaken during this episode of care, past medical/surgical history, current medication and allergies, and CNS contact details. The feedback received following the implementation of individualised patient passports, has been very positive. One patient commented they received 'the best care and support I've had since I started my transition'. Local care has subsequently improved, with local clinicians contacting the CNS directly for additional support and information.

CarePlans [Figure 9] have been developed to cover all stages of phalloplasty surgery. They are a photographic document encompassing

Figure 5. Images show a) the design of RAU, b) the graft being lifted and c) the healed urethra *in situ*.



Figure 6



Figure 7

Figure 6. Image of total flap loss.

Figure 7. Image of partial flap loss.

Figure 8. Example of a Patient Passport.

Figure 9. Example of a CarePlan.

NEW VICTORIA HOSPITAL

Patient Passport

Name:
Mr XXXX is currently undergoing treatment at New Victoria Hospital, Kingston upon Thames, KT2 7EG for masculinising gender affirmation surgery funded by NHS England.

DOB:
Please find below a resume of the care he has been receiving and our contact details if you need to discuss his care/management further.

HPC:
07/10/2023 – Right Radial Artery Phalloplasty
Support phallus at 45 degrees for 3 weeks
See wound chart
Telephone reviews with CNS:
19/10/2023 at 12:00pm
25/10/2023 at 1:30pm
02/11/2023 at 2:30pm
Review at New Victoria Hospital with CNS Tuesday 14th November at 1:30pm

Previous Surgeries:

Date	Hospital	Reason	Anaesthetic
Not sure - Less than 10 years ago	HUB	Breast removal	General
Not sure - As teenager	Braford royal infirmary	Knee surgery - Open incision	General

Allergies: None Known

Current Medication:

Name	Dose	Frequency
Progablin	50 mg	Other: 1 at night
Neulor-Eptra	220mcg/grams	Other: Inhale once daily
Sigproven	null	Other: 1 to be taken twice daily when required
Mirtazapine	15 mg	Other: 1 at night
Subcutaneous inhaler	null	Other: PMS

PMH:

Anxiety: Anxiety in everyday life talking to people, doing things just in general really. He had that too anxiety in social in new situations. On treatment of Mirtazapine. Not having counselling.

Asthma: History of asthma since young age. He is under the care of the GP practice. Not had a review within the last 12 months. Never used when he is due for his preventative injection he will ask at the GP. His asthma symptoms is normal during his work sessions. Well managed at present and not had asthma attack for years. He sometimes need to have courses of oral steroids during business time when asthma symptoms flare up. He has Subcutaneous inhaler and usage of prevent due to pollen. It is generally during these times that he requires the Subcutaneous.

Animal Medication: No animal Medication. History of anxiety which can sometimes cause aggression. This mainly happen on a new situation when he is alone. He tries to take his friend with him to medical appointments.

COVID-19 test: He had Covid 19(2021) mild - moderate symptoms. Asthma has flared up and required oral course of oral steroids. No hospital admission needed.

COVID-19 vaccinated: 1, 2021 2, 05/21 3, 11/21 He had unwell after the vaccination, general, no good appetite, vomiting, rigors. This was with the 1st vaccination.

Flemingalgia: History of Flemingalgia - affecting his whole body. Taking Progablin at night time. According to the patient his Flemingalgia is under control at present. He was under the care of Rheumatologist in the past, but currently now seen by the GP.


Contact details
CNS – Caroline Thomas, 07442 105600, cthomas@newvictoria.co.uk
CNS – Charlotte Graham, 07493 480406, cgraham@newvictoria.co.uk
After 17:00 or Weekends: Nurse in Charge of the Hospital, Alexander Ward, New Victoria Hospital, 020 8949 900X

Figure 8

Radial Artery Phalloplasty

Phallus
Daily showers from discharge home with warm water
Please monitor the phallus and keep supported at 45 degrees for 3 weeks
The phallus should remain warm and soft, as on discharge from hospital.
Please contact the CNS immediately if you have any concerns

Forearm



(Example)

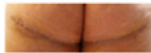
Keep arm dressing dry until 3 weeks post op, cover whilst showering phallus, groin and body. Then dressings should be removed for daily showers.

Dressings

- If dry and no tissue loss - Mepitel covered with moderate amount of gauze to cover entire area. Softban/wadding and crepe bandage with light compression. Change weekly
- If very moist and slough - alginate/Aquacel covered with moderate amount of gauze to cover entire area. Softban/wadding and crepe bandage with light compression. Change every 24 hours
- If moist and no slough - Inadine covered with moderate amount of gauze to cover entire area. Softban/wadding and crepe bandage with light compression. Change every 48 hours
- Don't pop blisters as may introduce infection
- Blistered skin can be fragile, take caution not to derof
- If haematoma then incise edge and squeeze clot out
- Wound swab and culture before starting best guess antibiotics
- Shower arm from 3 weeks post op
- Ensure bandage is not too tight especially over wrist as can compress vein and cause the hand to swell
- Tubigrip finger to elbow can be beneficial

Exercises
To help the graft take, arm movements are limited for 3 weeks.
Week 1 – Finger to thumb exercises only, wrist and elbow are immobilised
Week 2 – Smaller bandage to allow elbow movements, wrist to be kept in neutral position
Week 3 – Gentle wrist movements can commence

Buttock Wounds



(Example)

Skin from the buttocks is used to replace tissue from the forearm which was used to make the phallus. Skin is taken from the upper or lower buttock crease.

Lower Buttock Crease
The wound may feel tight for a few weeks. Patients are encouraged to only sit on their coccyx to prevent too much strain on the wound.

- Dry dressings – mepore/cosmopore
- If staples present, remove at 14 days post-op

Cavity wound breakdown

- Small – normal packing (aquacef) ribbon
- Large – VAC dressing preferable if local nurses can support

Sutures
All sutures are dissolvable unless otherwise informed. They can take a long time to dissolve and can cause irritation, therefore, if needed they can be removed from 2-3 weeks post op. Groin/phallus sutures are sealed with surgical glue which can look a little messy as it starts to peel. We would advise to shower daily and not to pick at it.

Arm Scar Management – (Once healed – Discuss with CNS)
Silicone sheets can be used on healed skin to help soften and flatten the scar. They can also relieve itching and discomfort.
To be effective silicone sheets should be applied with compression for 12 hrs of the day and the second 12 hrs leave graft to air with moisturiser for 3 – 6 months. They can be washed and reused.

Hand Swelling
Please ensure the bandage around your wrist is not tight as this may lead to hand swelling. If hand swelling is present please contact CNS as we can help prescribe a compression glove.

Contact details
CNS – Caroline Thomas, 07442 105642, cthomas@newvictoria.co.uk
CNS – Charlotte Graham, 07493 480406, cgraham@newvictoria.co.uk

Figure 9

the patient's recovery. Detailed information is given regarding the care of the phallus, donor sites, exercise and mobility, and scar management. Deviations from the norm are addressed, and again, the CNS contact details are displayed clearly to encourage collaboration. The CarePlans are emailed to the district/practice nursing teams and given to the patient for reference.

Teaching, education, and the sharing of knowledge is an intrinsic part of the CNS role. It is vital to promote awareness of a highly specialist area of care, with a marginalised patient group. To this end, an in-hospital training day has been created which is aimed

at hospital clinicians and has since branched out to Gender Identity Clinics (GIC). GIC clinicians attended the morning training and then observed surgeries in theatre in the afternoon.

CNSs have also delivered online training in bite-sized pieces to GIC multidisciplinary team meetings, during which information can be disseminated to large numbers of clinicians. The CNSs have also been approached by district nursing teams to deliver training and encourage concurrence and partnership.

As previously mentioned, the prevalence of full graft loss is 3–6%, resulting in additional

psychological challenges for the patient. The implementation of a 'Buddy' system for full graft loss has given peer support in an attempt to improve patient wellbeing. An additional measure which has been implemented is to connect the affected patient to another patient who has completed a successful second phalloplasty surgery.

Despite the complexities and challenges that have been experienced in setting up a specialist national service, the feedback has been positive and the patient group reports

feeling supported during their surgery and recovery. ●

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