

Ariel's tale

This is the clinical story of Ariel the six-legged dog from the perspective of all those involved in this extraordinary case seen at the Small Animal Referral Hospital at Langford Vets, Bristol, at the beginning of 2024. *Hattie Lawrence*, the CEO of Langford Vets, sets the scene for this outstandingly successful team effort...

Few people will have missed the sensational story of Ariel, the six-legged dog treated at the Small Animal Referral Hospital at Langford Vets this year (Figure 1). Ariel was the perfect case to capture the interest of the public with a worldwide reach – she had a combination of an attention-grabbing condition and a heart-rending story of abandonment followed by being saved by a local rescue centre. This was a fantastic opportunity to demonstrate what a special place Langford is and highlight the skill, dedication and compassion of our outstanding clinical teams. I am very proud to be a part of Langford Vets – Langford is centred around a commitment to career-long learning for all our staff, and challenging cases that require excellent interdisciplinary collaboration remind us all why this really matters. Here is the 'behind the scenes' story showing a variety of perspectives on how Ariel and Greenacres Rescue Centre were cared for.



Charlotte's story – Primary Care Vet

Ariel's story began in Pembrokeshire, where she was found abandoned as an approximately 10-week-old puppy. We were contacted by Greenacres Rescue Centre, who we work closely with here at Fenton Vets, about a little puppy with six legs. She certainly invoked curiosity, but also concern, as external deformities are often accompanied by internal abnormalities.

When she first arrived, she was understandably anxious and quiet and didn't want to really walk or interact a great deal. In addition to two extra limbs, she also had two vulvas, so it was important to know if she was urinating out of either or both, and to gauge how mobile she was (Figure 2A and 2B). She appeared to have grown normally otherwise and was in good body condition. With a caring fosterer she soon came out of her shell. While the two extra limbs were a hindrance, she was to all intents and purposes a normal little puppy.

On her radiographs we could see that the supernumerary limbs originated from an additional

section of pelvis. The deep abnormal anatomy of her pelvis presented its own concerns, and as Ariel grew the supernumerary limbs became increasingly cumbersome and started to impede her movement. After discussions with Greenacres and our team here we all agreed she would prove to be an unusual and challenging surgical case, and that it was in Ariel's best interests to refer her for advanced imaging and surgery at Langford Vets (Figure 3).

Jess's story – Client Care Advisor

When we received the referral through for Ariel, it was clear that she was not an everyday case. As an emergency referral hospital, we are exceptionally busy, so it is not often that we all make a point of looking through the history and radiographs of a patient and diligently following the outcome; however, this was one of the exceptions. We were excited to meet Ariel, and intrigued by her unique condition, she is such a gorgeous little pup, and we loved following her recovery journey from start to finish.



FIGURE 1: Ariel's six legs.



A

FIGURE 2A: Ariel's two additional legs.



B

FIGURE 2B: Ariel has two vulvas.

FIGURE 3: Small Animal Referral Hospital at Langford Vets, Bristol.



Alex's story – Orthopaedic Surgery Specialist

Ariel was initially referred through the Orthopaedic service for an amputation. She was an excellent learning opportunity for the students, interns, and residents. We identified, as can often be the case with so much crossover, that her care would be better managed in combination with our Soft Tissue Surgery department and it was great that Aaron, one of our Surgery residents who performed the initial consultation continued her care with supervision from the Soft Tissue Surgery specialists. Orthopaedics plan to see her back if there is lameness related to her remaining legs.

Ed's story – Soft Tissue Surgery Specialist

One afternoon in November I was asked by Aaron to look at one of his cases that had come in via Orthopaedics. This was a puppy with a congenital abnormality of an extra pelvic limb and an additional vulva (Figure 4).

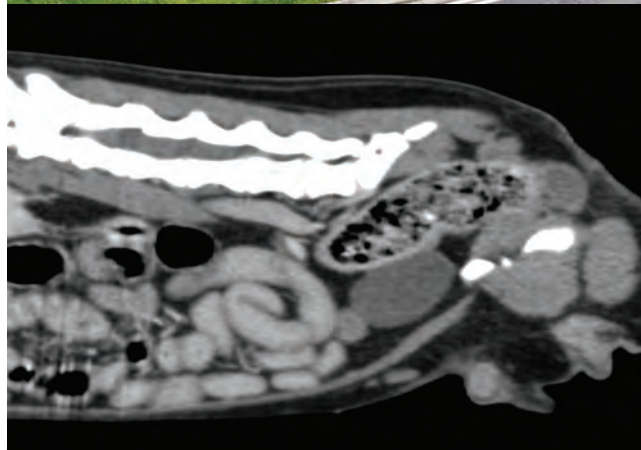


FIGURE 4: The CT image showing Ariel's two vulvas.



FIGURE 5: Ariel CT scan.

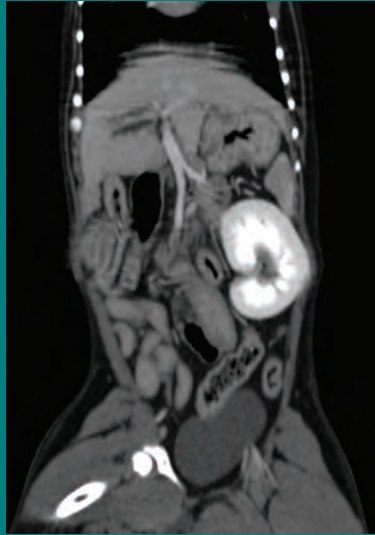


FIGURE 6: Ariel's CT scan showing one kidney.

A CT scan was performed, and this showed an additional hemi-pelvis had formed along with the extra limbs, which were fused (Figure 5). It became clear that a high amputation of the additional limbs was going to be the most appropriate way to manage her, with the additional hemi-pelvis left in place; removing this would be a much bigger operation to put the puppy through but also may compromise the nerve and blood supply to the remaining pelvic limbs.

The additional vulva appeared blind ending, and there were some other abnormalities of her reproductive tract (some additional also blind ending branches of her uterus); she also only had one kidney, but the ureter appeared to enter the bladder normally (Figure 6). I was concerned that although her reproductive tract anomalies were subclinical at this stage, if she were allowed to become sexually mature then a 'season' could lead to significant problems.

An ovariectomy became the priority, and this was performed routinely in early January. We took the opportunity to examine the other abdominal structures at open surgery and nothing was seen that was likely to impact on her quality of life in the future.

She returned 2 weeks later for the amputation (Figure 7). This was a routine proximal femoral amputation as we knew the neurovascular supply to the remaining limb was separate at that level. The only challenge in surgery was figuring out which muscles to preserve to close over the pelvis after the limb was amputated, as these muscles were not normal, and we could not pre-plan this from the CT.

We approached dorsally and reflected as much muscle away to achieve this, and with the intention not to compromise the muscle to the functional leg. Closure was routine and we were very relieved when she recovered, and the remaining limbs were still functional.

Aaron's story – Surgery Resident

Ariel's supernumerary limbs were successfully amputated without incident thanks to the work up and holistic planning across several specialist-led veterinary departments available at Langford Vets. Ariel was discharged with a specific plan for rest and physiotherapy before being a candidate for adoption.

Ariel drew a lot of interest as a learning opportunity for both students and colleagues as well as the wider

public following progress updates published by Greenacres Rescue. This culminated in international attention from major news and radio outlets with well-wishers from around the globe excited to follow her journey. The flurry of media attention resulted in me being interviewed for ITV and BBC news – having never appeared on TV before I was not quite sure what to expect – the media teams were all very friendly and the fact it was pre-recorded helped, as you would imagine I had a fair share of friends and family get in touch that weekend! One of the requests we had was to attend Manchester television studios and take Ariel with us, honest communication with the team at Greenacres Rescue during the weekend (despite their phone ringing off the hook too!) meant we both did not feel like this would be in Ariel's best interest.

Ines's story – Radiology Resident

As a Diagnostic Imaging resident, I was involved in the interpretation of Ariel's CT – it was definitely one of the hardest CTs to report that I have come across. It took the Diagnostic Imaging team almost 3 complete days to finalize the formal report as Ariel's changes were extremely complex. There were several discussions about what would be important for the surgeons to know for surgical planning and how to best describe the changes to Ariel's anatomy. Apart from describing the pelvic and hindlimb changes, the CT was important to thoroughly rule out other congenital anomalies that could change the surgical decisions, as it is often common for multiple congenital anomalies to be present in the same patient.

Ariel is an example of the importance of a multidisciplinary team working together to achieve the best possible outcome for the patient. We are all incredibly happy to see that she is doing so well!

Holly's story – Anaesthesia Nurse

I provided anaesthesia care to Ariel for her supernumerary limb amputation. Providing appropriate analgesia is extremely important to protect all our patients' welfare. Anaesthetic drugs have depressant effects on many of our patients' body systems, so every anaesthetic is a bit of a balancing act. For Ariel's procedures, this involved having to consider her specific needs. For example, we tried to choose agents that would not be processed by Ariel's single functional kidney. Despite Ariel's unusual pelvic anatomy, we were able to administer a successful epidural, preventing her from feeling any pain during her procedure. Her anaesthetic was uncomplicated, and she had a smooth pain-free recovery.

Lydia's story – Theatre Nurse

I was the scrub nurse for Ariel's surgery. My role included assisting the surgeons by manipulating and supporting the limb, preparing, and passing surgical instruments, and managing the surgical trolley. This involved maintaining asepsis/sterility of the surgical instruments, organizing surgical kits, and requesting and receiving consumables from non-sterile theatre assistants and nurses. It was fascinating to see a supernumerary limb amputation, as this is a condition I have not experienced before. It was interesting, witnessing how the surgeons managed this case, in comparison to a regular limb amputation.

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FIGURE 7: Ariel undergoing surgery.

Katie's story – Theatre Assistant

As a Theatre Assistant I helped with Ariel's surgery by ensuring the theatre was set up ready, including preparing surgical kits and instruments required. I assisted the anaesthesia team in theatre and helped Aaron position Ariel and began to prep her surgical site. When everyone was ready, we conducted a pre-surgical safety checklist and then continued to assist the surgeons by obtaining any further surgical instruments and consumables required throughout the procedure. The procedure was interesting for me as I had not seen a supernumerary limb in a dog before.

Ashleigh's story – Soft Tissue and Surgery Ward Nurse

Postoperatively, it was important to ensure that Ariel was well supported whilst learning to walk without the addition of her supernumerary limb, which she had so far not known a life without. We used a sling to support her underneath her abdomen until she had regained her strength and confidence. She is such a determined little dog, so this did not take her long at all! It was so rewarding to see her be able to move freely without the constraints of the additional limb.

As conventional post-op surgical pet shirts were not suitable for Ariel, to protect her surgical site I customized a pair of children's tights for her to wear. Sometimes you have to think outside the box and get creative!

Abbie and Abi's story – Surgery Ward Animal Care Assistants

A very affectionate, cuddly dog, Ariel was a lovely patient to handle; we really enjoyed getting to know her throughout her time at Langford. Caring for Ariel presented some new considerations we had not practically come across in practice before; considering her additional limbs and therefore extra pressure points and areas to protect was interesting.

Postoperatively our main responsibilities were making sure she stayed comfortable during recovery as well as monitoring and reporting back to nurses any necessary information. Also, walking and feeding when she was awake enough to do so, administering oral medications, and applying cold compresses to the area

to help reduce swelling (which always came with a cuddle!). Although before she could mostly live life normally, when recovered and the epidural had worn off it was nice to see her able to enjoy time outside with no restrictions from her supernumerary limb.

We really enjoyed taking her for walks, and regardless of her condition she was an incredibly happy puppy who loved meeting new people and spending time outside. She enjoyed spending time in our gardens and was adored by many people here at Langford (Figure 8A and 8B). We feel so lucky to have been a part of such an extraordinary case alongside the amazing team at Langford and look forward to hearing about Ariel's new adventures in the future.

Noah's story – Final Year Vet Student

I was the final year veterinary student who was involved in the care of Ariel during her time at Langford Vets for her supernumerary limb amputation. As a part of our surgery rotations in final year, we are tasked with assisting in consultations and admissions as well as kennel duties, client communications and maintaining patient records. Students can also scrub into their patients' surgeries, which in this case was Ariel's amputation. The entirety of Ariel's case is extremely fascinating, and I am lucky to have been able to take part in this unique learning experience.

While the supernumerary limb is anything but a normal presentation, applying the understanding of regular anatomy helped with surgical planning and proved useful from a student's perspective to feel confident with the approach to a hindlimb amputation. This case emphasized the concept that having a logical approach to a procedure and through applying the same basic principles, many things are achievable and not as daunting as they may appear.

Gemma's story – Marketing Manager

As a marketing team we have found Ariel's story fascinating. We were aware that she had a very loyal social media following at Greenacres Rescue, but we had no idea of the media storm she would generate. Very rarely do we have a social media post which

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FIGURE 8: Ariel enjoying the gardens at Langford postsurgery.

reaches an audience of 86,000 people, but the outpouring of love for Ariel was phenomenal. As a ray of sunshine in an otherwise miserable news week, Ariel's story inspired the mainstream press and we soon saw press requests coming in from all over the world with coverage in Australia, Canada, USA even Honolulu! A flurry of TV and radio interviews followed for our amazing vets. We had a busy weekend creating multi-platform content and tracking all of Ariel's press appearances while monitoring comments, reactions, and shares, which is sometimes a nerve-wracking process for our team but on this occasion, there was nothing but joy. We really hope that the additional publicity we have been able to bring alongside Greenacres Rescue will go to help other animals in their care and inspire the vets and vet nurses of the future.

Vicki's story – Hospital Director

Ariel was a great case for the Small Animal Referral Hospital – initially you could sense a buzz on the clinic floor when she arrived, as you might expect for such an unusual case. The chance to highlight our collaborative and multi-disciplinary specialist-led teams with such an impressive media response felt like a real gift of an opportunity to me (even if fielding calls from across the world occupied a reasonable chunk of that weekend!).

As a University Hospital a case like this that required us to innovate alongside teaching students, interns and residents and learning ourselves was welcomed and is a big reason many of us choose to work here.

One of my initial concerns was that the press release stated £15k had been raised for Ariel's care – we knew our own fees were significantly less than this and I wondered if we should state this to clarify (we are all aware there has recently been some backlash regarding the costs of veterinary procedures, plus knowing that these costs were fundraised to cover all of her care and treatment). In the end we didn't really get a chance to say anything about this and aside from the odd comment the responses were overwhelmingly positive. 🐾

References and further reading are available at www.bsavalibrary.com and in *e-Companion*.

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