# Equine Dystocia - Fetotomy

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<tr>
<th>School/Center</th>
<th>Partial</th>
<th>Total</th>
<th>C-section</th>
<th>Remarks</th>
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<td>CSU</td>
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<td>At CSU, we would perform a cesarean surgery in most instances where a vaginal delivery with the mare awake or under general anesthesia was not successful. We rarely perform a fetotomy on our client mares, but are not necessarily against the procedure. The final decision is made by the therio and surgery personnel involved with the specific case. Pat McCue</td>
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<td>MidAtlantic Equine Medical Center</td>
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<td>C-section at our facility. No fetotomy Dean P. Neely VMD PhD</td>
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<td>Mississippi State</td>
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<td>In dystocia cases in which the foal is dead we still perform a fetotomy rather than c-section. However, I have only performed 2 &quot;complete&quot; fetotomies this spring + several 1-2 cut (remove head, remove 1 limb). I suspect that your responses will reveal that the clinics that have clinicians that handle or have had experience with</td>
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Bovine dystocia cases are more prone to utilize fetotomy in the mare. Also economics play a significant role. At our place (Mississippi State CVM) a fetotomy costs 1/3 to 1/2 what the surgery is and aftercare/hosp. is usually less & only rarely the same or more.

Richard Hopper

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<th>NCSU</th>
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| We at NC State are quite like the rest. Because most of our dystocias have been seen by others and come from some distance, the foals are usually dead. We start with triple drip anesthesia in a padded stall with a hoist and will do whatever 45 minutes to an hour will allow us including partial fetotomies. If we can not resolve them in less than an hour and fifteen minutes the surgeons get them. Most clients come prepared by our referrings to pay for a c-section so only rarely do we do full fetotomies. All of this is predicated on the mare's vaginal vault being in a condition to allow manipulation and extraction.

Mike Whitacre

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<th>Ohio State University</th>
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| You mention "complete" fetotomy. In my experience there are few cases that require more than 1 or 2 cuts. A tight carpal and/or head/neck flexion are the most common indications when the foal is dead, and "hanging" the anesthetized mare has not permitted manual correction.

You also added the scenario in which "the mare at presentation had already been submitted to obstetrical attempts". In cases that presented with a swollen vulva and irritated vaginal mucosa due to prolonged vaginal manipulations I have recommended surgery rather than exacerbate the damage with further vaginal intervention. We all know they like to lay down scar tissue after mucosal abrasion!! In some cases I have proceeded with 1-2 cuts if the owner wishes to save some money. Lots of lube and a well placed cut can resolve some of these within minutes, even though someone else has worked on the mare unsuccessfully for way too long. I personally wouldn't hesitate to spare a valuable mare the additional risk of c/section and the inherent post-op risks if I thought that a rapid 1-2 cut fetotomy would resolve the problem. It would depend on the amount of prior intervention before I get to see the case - and obviously the informed consent of the owner. My personal bias is that fetotomy often gets a bad wrap because it is resorted to after prolonged vaginal manipulations which in themselves cause lots of mucosal abrasion and swelling. Likewise, I have seen some fetotomy cuts made at an incorrect location and the resulting sharp bones have caused the referring DVM...
some problems. I know the Europeans like the technique - but in most university hospitals over there the obstetricians "keep their hand in" by doing bovine fetotomies as well. My concern here is that inexperienced residents (medicine and surgery) working on after-hours cases may not have the expertise to make fetotomy the best option. It really does come down to the experience and expertise of the attending clinician.

Grant Frazer

| Ontario Veterinary College | X | X | The fetotomy discussion has been very informative and we have followed it with great interest. The situation at the Ontario Veterinary College is very similar to that already described at other schools. A very high percentage of our dystocia referrals have dead foals and we do our share of fetotomies. About the only presentation we are very reluctant to tackle is a transverse. As with others, cost is a big consideration. However, we have started to make many decisions based on the owner’s desire for future fertility of the mare. There is literature supporting the contention that the less manipulation the better and a rapid C-section is better for future fertility of the mare. 

Walter Johnson |

| Oregon State | X | XX | Below are the comments from 3 of our 4 Large Animal Surgeons. The first two opted for C-section especially if someone else had already been working with the dystocia. The third response is longer.

Most veterinarians lack the expertise to be good at fetotomy, specifically in the equine. The ones I have done over the years have been dead foals, with causes that could allow delivery with a minimal number of cuts. The mare does not take the same kind of manipulation standing as the bovine, so general anesthesia is often required. Trauma also is inherent, and the results of can be more drastic than abdominal surgery. Big horses, eg drafts, are double tough to do a fetotomy on for me, and worse under general anesthesia; so they are a toss-up either way. 

It would seem to me that the rules I go by are as follows:

1. If the foal is dead, fetotomy should always be considered.
2. If the malpresentation is one that could allow the veterinarian to make one or two cuts across a head or one front leg; that is reasonable to me. Removal of both legs or portions of, e.g. in the carpal flexural deformities, is an easy method; then extracted the foal with his head\neck chained. |
3. If the fetus is emphysematous, cut it out with wire and take your chances; because C-section will not have any better results.

4. Big mare that is tough and hard to handle, will require anesthesia, either epidural or general; and in general I put them under anesthesia. When they are on the table and waist high, it makes life easier for both.

5. Uterine, cervical and vaginal trauma are at a higher risk with embryotomy, and this has to be taken into consideration.

6. Embryotomy is often chosen as an option because of the differences in costs, however they are a lot of work, hard work sometimes, and from my perspective this consideration is not applicable unless the dystocia is a reasonably easy one. When in doubt, cut it out; from the ventral midline.

Our ambulatory service does probably 1-2 equine fetotomies a year. We pick our cases regarding fetotomy and refer those where surgery is an option to the teaching hospital.

R. Crisman

At Texas A&M, our procedures can vary by clinician (imagine that!). Speaking for myself, if foal is dead, i anticipate only 1-2 fairly easy cuts, and **there is room to work** (i.e., mare not worked on too long and thus swollen, dry birth canal and uterus not contracted down around fetus), my first preference is sedate, start i.v. fluids, take to padded stall next to surgery prep area, administer general anesthesia, lift hind limbs as needed and pump in 1-2 gallons of warm water mixed with ob lube - do fetotomy, lavage, medicate uterus and vagina, suture vulva partially, recover mare, and follow with systemic antimicrobial therapy, anti-inflammatories, oxytocin, lavage(s), etc. This is done with prior approval usually for C-section if fetotomy is deemed too dangerous, so mare's abdomen is already clipped and mare finishes prep and goes to surgery asap. If client won't approve or can't afford the anesthesia, my second preference is to sedate, start i.v. fluids, administer clenbuterol, give caudal epidural (0.6 ml xylazine + 2.4 ml Carbocaine + 3-4 ml sterile saline), pump in 1-2 gallons of warm water mixed with ob lube, and apply vaseline to birth canal and fetal parts, then do fetotomy standing applying more lube as necessary. That said, some mares are sent directly to be sectioned because of feeling that this is the best option for a given case, or some mares are prepared similarly and foal manipulated and delivered vaginally. We actually find we are doing fewer fetotomies than in the past as this often results in vaginal delivery.

Terry Blanchard
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<th>University of Illinois</th>
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<th>We primarily do fetotomies. Each mare is assessed and the owner's pocketbook as well. Most are easily (HA!!) resolved with one or two cuts. We feel most mares do better with a fetotomy than a C-section and most go home for a lot less money. For those that can't be corrected/cut, then C-section by our equine surgeons. Live foals as well. Do you ever get any of those @ a referral clinic??--had one mare this spring brought in 5 days after she broke water! 3 cuts and sent home in 3 days!! No fun and students think it's yucky, but.... How much fun can you really have @ 2 am on a Sat nite! Draft mares are the worst. No fun to do anything to. Everything is big and too far away!! Need arm extensions!! Clifford F. Shipley</th>
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<td>University of Pennsylvania</td>
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<td>We make the decision on a case-by-case basis re: whether or not fetotomy is an option. In general, our experience here seems similar to what most others have posted. The dystocia is evaluated and, if needed, the mare is anesthetized and suspended by her hind legs. Many (most) can be delivered vaginally with the extra help of drugs and gravity. For those that can not, a decision is made about fetotomy vs. c-section. In general, fetotomy is used judiciously and only if: Foal is dead Clinician on duty is comfortable with the procedure The feeling is that 1 to 2 relatively straightforward cuts will be sufficient to relieve the problem (e.g. contracted tendons, simple head back, or similar). The mare has sufficient room in her birth canal and a sufficiently dilated cervix to permit the procedure. Fetotomy also goes up on the list if cost is a major issue. As Grant said, informed consent from the owner is always obtained. Most of our mare fetotomies are done under general anesthesia as the decision is usually made after they have been dropped to facilitate suspension and a controlled vaginal delivery. This makes things much easier for all involved. My estimate is that this year we performed only about 3 or 4 partial fetotomies. In the right situation, I think it can really simplify things, reduce the cost to the owner, and minimize post-op recovery time for the mare. Regina Turner</td>
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Another comment from UPENN
Occasionally, if the fetus is dead, there are financial limitations and the dystocia can be relieved in 2 or less cuts a fetotomy may be performed. But routinely, During foaling season breeding farms in this area usually keeps a van at the loading docks with the ramp down. If a mare gets into trouble with a dystocia that can not be resolved in timely fashion local veterinarians quickly refer the case to the New Bolton Center. The dystocia team members (consisting of anesthetist, OR nurse, theriogenologist, neonatologist, and emergency service surgeon) are beeped immediately. Upon arrival the mare is evaluated and vaginal manipulations performed as an IV catheter is being inserted and the mare’s abdomen is being clipped and grossly scrubbed. If needed the mare is anesthetized and hindquarters elevated. If the dystocia is still not relieved the mare heads rolls directly into surgery for cesarean section. Foals are often alive at presentation and most of the mares' future depends on them having an intact functional cervix and pelvic canal.

Patricia Sertich
University of Wisconsin - Madison

I rarely do more than 1 or 2 cuts to relieve a dystocia. I don't know if I'm getting smarter or weaker, but the thought of a complete or even an extensive fetotomy has less appeal all the time. Many of our mares arrive after considerable effort in the field and a fairly long drive. The birth canal is seldom what you would desire. While I have been unhappy on occasion with the outcome of both approaches, I have never had the surgeons fail to get the foal out of the mare. Wish I could say the same for me.

Harry Momont
VA-MD

We will do a fetotomy if it is felt that it can be successfully completed with only 1-2 cuts. If it is felt that it would require a whole body fetotomy then we will have surgeons do c-section.

John Dascanio, VMD
Veterinary College, St-Hyacinthe, Canada

I strongly agree with the previous replies by Dr Frazer and and Dr Hanlon; no point to repeat. Here in Montreal where we have mostly draft mares and warmblood type and Standardbred horses as the most common referral cases for dystocia. We rarely have a case of cesarean despite the fact that we have an excellent team of equine surgeons. The reasons are always the cost and prognosis and the fact that the foal are dead on arrival. We have roughly a case load of 5-6 referral dystocias / season and only 2 cases of dystocia went for cesarean in more than 15 years. I
I have followed the fetotomy discussion with interest. In previous years I have done fetotomies if the foal was dead and I thought that I could not get it out easily. I do one or two cuts max. I have only done one complete that was a “disaster”. Have done also one or two C-sections on farm through a left flank. However in 1998 was called out for a dystocia. Due to the lack of help at that particular time, to replenish fluid and lubricate, I reached for the hose hanging of the wall. I stuck the hose in the mare and let the water flow in freely. Much to my surprise after a little bit the foal started to float as if it was in a pool. It almost felt like repositioning a foal of a mare that has been induced. Since then that has been my fist line of “defense” for dystocias. The number of foals that I am unable to deliver vaginally is very very low. Have never had a problem with the mare either. I have done it also with a live foal. Repulsion with out fluid is impossible for me to do and to replenish fluids one bucket at a time with a stomach pump takes too long. Has worked great for me.

Juan C Samper DVM, PhD

We VERY RARELY perform a c'section in our practice. We are lucky in that we are a primary care practice with a large number of mares. Usually we are the ones doing the fetotomy, ie. no prior interference from a referring DVM or therio resident. I must say that in our hands fetotomy is extremely successful. Rarely do we need to perform more than 1 or 2 cuts. 3 cuts is about the maximum and that is for something really tricky like a "dog-sitter". Recovery and future repro potential is excellent. We are also lucky in that or practice looks after about 60 000 dairy cows and us equine guys get to calve plenty of cows while the dairy season is busy and before the mares start foaling, one of the great benefits in having a multi-species practice with work loads that don't overlap.

As I always tell students. The best equine obstetricians are dairy vets! Just my thoughts,

Dave Hanlon

Another comment form New Zealand

There has long been acceptance of the dogma that we must complete a foal fetotomy in less than 2-3 cuts or move to C-section. I have not tried to search
for the origins of this sort of general statement but it does go back a good way and appears in early material by Vanderplassche and also early editions of equine medicine and surgery and other esteemed texts. It is often coupled with statements about the adverse effect of manipulation and fetotomy on the mare's reproductive tract and potential for decreased fertility.

There appears to have been little evidence for this position other than anecdotal experiences.

I acknowledge that "rough", "excessive" (apply any adjectives you like here), vaginal delivery of a foal, may be accompanied by a risk of cervical laceration and perhaps of iatrogenic endometrial degeneration. I acknowledge that the risks of such adverse sequelae may also be increased when fetotomy is performed. The link between delivery and cervical laceration and the association between cervical laceration and subsequent infertility are both indisputable. The link between vaginal delivery or fetotomy and subsequent endometrial fibrosis/degeneration appears to me to be more tenuous ie what sort of level of trauma is acceptable, how much manipulation is required to induce an appreciable change, etc.

In addition, I also believe that vaginal delivery done well, and fetotomy done well by someone experienced and skilled in the technique, probably has a reasonable (and certainly acceptable) risk of adverse outcome (adverse meaning reduction in fertility with death of the mare as the extreme end of reduction in fertility).

I freely admit to being biased in favour of fetotomy. I have done many complete fetotomies in mares (6 to 8 cuts) and have been very comfortable with this. I have also done a large number of shorter fetotomies (2 to 3 or 4 cuts) and feel that these again represent no problem at all. Most of these were done at Ohio State and on at least one occasion, the mare sustained a cervical tear (owners chose not to breed that mare again for other reasons), but on most occasions the mares came through the procedure without any appreciable adverse effect on cervix or uterus.

My position is that if the operator is skilled at fetotomy, has the requisite equipment, etc, and the problem is felt to be amenable to correction with reasonable risk to the mare, then a fetotomy remains the preferred option (regardless of time and number of cuts).

These statements are of course confined to those mares where the foal is dead. When dealing with a live foal, if the foal is valuable and is the focus of attention then C-section immediately becomes the preferred option if vaginal delivery is not possible.

Nigel Perkins, BVSc, MS, Dip ACT, FACVSc