

## Case story

# Suspected 'large for gestational age' baby



Part of NHS Resolution's  
maternity campaign 2022/25  
**#ImprovingMaternityOutcomes**

# Early Notification

## Case story guidance

### Background

In [Advise, resolve and learn Our strategy to 2025](#), our second strategic priority is to share data and insights as a catalyst for improvement and our third is to collaborate to improve maternity outcomes. Aligned with these aims we have gathered together learning from our Early Notification Scheme and produced a number of case stories to help support learning from harm identified through claims.

### These resources

Our case stories are illustrative and based on recurring themes from real life events. These experiences have been highlighted and shared with you, to help identify potential risks in your clinical area, promote learning and prevent fewer incidents like these occurring in the future.

### How to use the case stories

There are various ways you may use the case stories, from individual self-directed learning to support continuous professional development to using them in a team environment. The idea is that by learning from the experience of others, maternity unit staff will be able to change their approach to care.

As you read or discuss the examples of incidents that we are sharing we ask you to consider the following:

- Could this happen in my organisation?
- What changes within my organisation or team might I consider after reading the material, including individual practice?
- What information should I share with the team?
- How can I share the learning from this case story?
- Who else needs to know?

### Practical applications

1. Consider the key elements of the case story and through reflection apply the learning to influence your practice in the future.
2. Use this case study as a point of discussion at appropriate multi-disciplinary team meetings, safety huddles, and/or human factor's training.
3. Use this case study to create a multi-disciplinary simulation in the clinical area or on mandatory training.
4. Review your claims scorecard to identify whether there are any themes which relate to this case story and identify where improvements could be made.

## Case story

This case story is illustrative based on a range of examples of real events. NHS Resolution is sharing the experience of those involved to help prevent a similar occurrence happening to patients, families and staff. As you read about this incident, please ask yourself:

- Could this happen in my organisation?
- Who could I share this with?
- What can we learn from this?

**Topic:** Suspected 'large for gestational age' baby

### Definitions:

- National Institute for Health and Care Excellence (NICE) guidelines refer to suspected fetal macrosomia or large for gestational age (LGA) as: *“an estimated fetal weight above the 95th percentile, at or after 36 weeks,”*<sup>1</sup> which will be applied throughout this case story. The terms LGA and macrosomia will be applied interchangeably.
- Ensure you are familiar with your local trust's guidance on LGA or macrosomia, including agreed definitions, referral pathways and counselling guidance.

### Key points:

- There is limited national guidance regarding babies suspected of being LGA or having fetal macrosomia, including a lack of consensus definition. NICE and the Royal College of Obstetricians and Gynaecologists (RCOG) do however provide guidance including standards of clinical counselling relating to the options and timing of birth, including the risks and benefits of each, that must be afforded to these groups.<sup>1-6</sup>
- Request maternal records from previous pregnancies if required to facilitate accurate risk assessment at booking.
- Offer women with a previous baby over 4.5kg, diabetes screening.<sup>3</sup>
- Ensure glycosuria of 2+ or above on 1 occasion, or glycosuria of 1+ or above on 2 or more occasions is investigated for diabetes as per NICE guideline.<sup>3</sup>
- Ensure symphysis fundal height measurements (SFH) are measured, plotted and actioned as required including referral for ultrasound growth scans when indicated<sup>6</sup>.
- Be mindful that ultrasound measurements in the third trimester of pregnancy have a margin of error of at least 10%<sup>3</sup> and any antenatal diagnosis of LGA, or macrosomia can only be confirmed following birth. Advise mothers of this during counselling.<sup>4</sup>
- Women found to have a baby with suspected fetal macrosomia at term should have birth options discussed including the risks and benefits of induction of labour, expectant management and caesarean section.<sup>1</sup>

- If a mother is in labour and a baby is thought to be macrosomic, the options for birth should still be discussed.<sup>4</sup>

## Maternity story:

### Antenatal features

Ms X was a 33-year-old white British mother who booked in her second pregnancy at 9+1 weeks gestation. She had delivered two years earlier by spontaneous vaginal birth on the alongside birth centre in the same trust. When asked by the midwife at her booking appointment, she was unsure of the weight or gestation of her first baby but stated they were “*very large*.” Ms X expressed her wish to deliver in the alongside birth centre again. No risk factors were identified, Ms X was not taking any regular medications, and a body mass index (BMI) of 26 was calculated. The midwife booked Ms X for low-risk midwifery care and generated a customised growth chart for her maternity notes. A schedule of routine appointments was made which Ms X attended alongside all routine antenatal screening. Ms X’s dating and anomaly scans were unremarkable.

Ms X was seen at 28+2 weeks in the community midwife clinic. Her baby was moving normally, and her SFH was measured and plotted >97<sup>th</sup> centile on her growth chart. The urine dip showed 1+ glycosuria.

Three weeks later, Ms X was seen in triage following a fall. She sustained no injuries, and an antenatal cardiotocography (CTG) was performed to confirm fetal wellbeing with Dawes Redman criteria being met after 12 minutes. The SFH height was measured as 36cm but was not plotted on the growth chart. Maternal observations were all within normal range and the urine dip showed 1+glycosuria, staff did not notice that glycosuria was detected at the previous appointment and did not investigate this further. An obstetrician reviewed Ms X and discharged her home with safety netting advice.

At 33+6 weeks Ms X was seen in the community antenatal clinic where Ms X’s SFH plotted >97<sup>th</sup> centile. When Ms X was informed of this she stated, “*I had a big baby before, it doesn’t surprise me.*” The midwife agreed and Ms X went home. Ms X did not have her urine tested.

At 36+2 weeks Ms X had a community appointment to confirm her birth plan. The SFH was not measured as the midwife had misplaced her tape measure, however the maternal observations were within range and the urine dip showed 1+ glycosuria. It was presumed that this was the first episode of glycosuria and no further investigations for diabetes were performed.

At 38+4 weeks Ms X saw a different community midwife in clinic who measured and plotted an SFH >97<sup>th</sup> centile. Ms X’s urine dip showed glycosuria 2+. The midwife referred Ms X for an ultrasound growth scan as she was worried Ms X had a “*very big baby on board*.” The midwife explained that there was some “*sugar in the urine*” but that it was “*a bit late in the pregnancy to refer for the diabetes test.*” Ms X went home.

The growth scan was delayed to 39+3 weeks due to a bank holiday weekend. Both the estimated fetal weight (EFW) of 4610g and the abdominal circumference (AC)



were >97<sup>th</sup> centile, with normal liquor volume. The sonographer confirmed with Ms X that she “*had an upcoming appointment with her team*” to discuss the results.

At 40+5 Ms X was reviewed in the routine antenatal community clinic. Ms X confirmed her wish to deliver on the birth centre and a sweep was discussed and performed. A plan for postdates induction of labour (IOL) in the community with mechanical method was made and booked for 41+0. An SFH measurement was not completed as Ms X had been scanned in the previous week. The growth scan results were not reviewed or discussed.

### **Labour**

At 40+6 Ms X was admitted to the birth centre in spontaneous labour. On admission at 23:30 her maternal and fetal observations were within the normal range, and she was contracting 3:10. On vaginal examination the cervix was found to be 3cm dilated with intact membranes. Ms X was offered the opportunity to return home but requested to stay. Ms X was admitted to the birth centre and pethidine was provided. As Ms X was considered to be in the latent phase of labour and staff had presumed Ms X would go home, an intrapartum risk assessment was not performed on admission.

Seven hours later Ms X requested to use the birthing pool as her contractions had increased to 4:10. Ms X was helped into the pool by her partner and 15-minute intermittent auscultations were commenced by the midwife as Ms X was assumed to be in established labour. Ms X was examined at 08:45 and the cervix confirmed to be 4cm dilated, membranes intact, with right occiput-transverse position, caput +1, and presenting part (PP) -1. The contractions had reduced to 3:10.

At 13:20 Ms X was examined again and found to be 5cm dilated, with clear liquor, contracting 3:10. An amniotomy (ARM) was performed.

At 16:00 Ms X was examined and found to still be 5cm dilated, the PP remained at -1 and there was 1+ caput with no moulding. The liquor remained clear. The midwife recommended transfer of care to the labour ward due to the lack of progress which Ms X agreed to. The labour ward coordinator was informed, and transfer delayed until a labour ward room was cleaned.

At 16:55 Ms X arrived on labour ward. A CTG was commenced, and an obstetric review requested. Following doctor's handover, the obstetric team reviewed Ms X at 18:00. Ms X was contracting 3:10 and her CTG was categorised as normal. The notes were reviewed, and the obstetric team noted the EFW from the growth scan, however the various options for delivery were not discussed. It was agreed with Ms X that there had been slow progress in the labour and that this may be due to the position of the baby's head, the baby's size or inadequate contractions. An oxytocin infusion was recommended. Ms X requested an epidural prior to starting the oxytocin infusion, as she had heard oxytocin was more intense and painful. A cannula was inserted, and the anaesthetist called. The anaesthetist attended and inserted an epidural. The oxytocin infusion commenced at 20:00.

Ms X's oxytocin infusion was titrated up as per local guidance until 4:10 uterine contractions were achieved by 21:20. The CTG was normal throughout. Ms X was examined at 02:00 and found to be 8cm and there was 2+ caput present, there was

no moulding and the PP remained at -1. The liquor was noted to be clear. The labour continued for another 4 hours and at 06:00 Ms X was found to be 8cm dilated with the cervix now swollen. The baby's head was in an undetermined position, with 1+moulding, 3+ caput and meconium-stained liquor was observed. An obstetric review was requested.

At 06:20 the obstetrician reviewed Ms X and completed a vaginal examination with similar findings. They noted the liquor was now stained with meconium, however the CTG was normal. The obstetrician recommended that a category 2 caesarean section was carried out for slow progress in labour. The obstetrician recognised that the baby's head may be difficult to deliver and asked the senior midwife to attend theatre and be prepared to push the baby's head up vaginally if needed. The anaesthetist was informed that Ms X was at an increased risk of bleeding due to her prolonged labour, and they agreed to prepare and commence an oxytocin infusion immediately following delivery. Ms X was consented, and the oxytocin was turned off. Ms X was not informed of the risks associated with a prolonged labour including an increased likelihood of difficulty delivering the baby and of a post-partum haemorrhage (PPH) following birth. Ms X was moved to theatre at 07:00 and her epidural topped up.

Knife to skin was at 07:30. On entry a lot of free fluid was noted. An incision was made on the uterus at 07:37 and the obstetric registrar attempted to deliver the baby with their right hand for three minutes. This was unsuccessful and they changed to their left hand with no effect. The baby's head was impacted and deflexed. Five minutes after entry to the uterus, the head had remained impacted despite several recognised manoeuvres. An obstetric emergency 2222 call was placed, requesting urgent attendance from the neonatal team and the obstetric consultant on call who was on their way to work for the day was called and asked to attend immediately following their arrival at the hospital. Terbutaline was given to Ms X by the anaesthetist and the operating table placed in a head down position. The registrar tried to deliver the baby again with no effect, followed by the assisting obstetrician who tried to deliver the head unsuccessfully.

The labour ward coordinator agreed to push the baby's head up from the vagina whilst the obstetrician attempted to deliver, with no success. The registrar made an inverted T incision on the uterus in an attempt to deliver the baby by reverse breech extraction which was unsuccessful. By nine minutes, the elective gynaecology theatres were contacted to see if any additional surgeons had arrived onsite who could help as staff were aware that the operating list was due to start at 08:00. A massive obstetric haemorrhage (MOH) call was placed as the total running estimated blood loss (EBL) was 1700mls and Ms X continued to bleed heavily. A gynaecology surgeon was available and arrived after a further five minutes to assist, however their first attempt to deliver was unsuccessful. The gynaecology surgeon extended the T incision, and the baby was delivered 17 minutes following entry to the uterus. The baby was immediately transferred to the resuscitaire. The consultant on-call arrived shortly afterwards. Ms X was given a general anaesthetic for surgical repair of the extended uterine incisions and bilateral uterine angle extensions and blood products were administered. Ms X was admitted to HDU for recovery with an intrauterine balloon tamponade in-situ and an estimated blood loss of 3.9 litres.

## **Neonatal outcome**

A baby girl was born cold, floppy and not breathing. The baby required extensive resuscitation including intubation and chest compressions prior to transfer to the neonatal intensive care unit (NICU). The cord gasses were as shown in table 1:

Table 1:

Cord Gas	pH	Base Excess	Lactate
Arterial	6.769	-21.6mmol/L	Unrecordable
Venous	7.122	-14mmol/L	11.4

In NICU the baby had persistent hypoglycaemia for the first four hours of age despite optimal treatment and developed intractable seizures requiring multiple anti-convulsant. Neurological examination indicated the baby was comatose and abnormal cerebral function monitoring (CFM) recordings showed burst suppression. The baby was cooled for 72 hours. On day 5 of age an MRI brain was completed and reported “*profound global hypoxic injury...extensive subdural haemorrhage and parenchymal haemorrhages.*” The baby sadly continued to deteriorate, and a decision was made with the family to provide palliative care. The baby sadly died on day 9 of age with her parents present.

## Governance

At a perinatal mortality review meeting (PMRT)<sup>7</sup> the notes from Ms X’s previous birth were requested. Her first baby was born weighing 4550g and Ms X was noted to have had a post-partum haemorrhage (PPH) of 1.4 litres requiring blood transfusion postnatally.

## Learning Points:

This case highlights the importance of:

- Identifying obstetric history and risk factors:
  - Mothers with a previous macrosomic baby should be offered an oral glucose tolerance test (OGTT) at 26-28 weeks to assess for diabetes in future pregnancies.<sup>3</sup> In this case the birth weight of Ms X’s first child was never clarified during her care and revealed at PMRT<sup>7</sup> to be >4500g. Ms X therefore missed an opportunity for OGTT that could have altered the course of her care and potentially the outcome for this baby if diabetes was diagnosed.
  - The birth weight of Ms X’s previous baby should also have been retrieved to improve the accuracy of the customised growth chart which would have helped risk assess the mother appropriately. As the weight of the first baby was unknown, a small for gestational age (SGA) baby could theoretically have been missed.
  - The mother alluded to the birth of a previously “*large baby.*”, this was an indication to request and review the mother’s medical records from her previous pregnancy to determine whether the baby had been LGA and if any associated risks had occurred. As the mother delivered within the same trust this should have been achievable. The demonstration of

professional curiosity would have enabled a more accurate risk assessment of this pregnancy.

- Ms X's history of PPH would have been identified if her medical records had been requested. The risk of further PPH could have then been discussed with Ms X with an offer of delivery on the obstetric unit.<sup>5</sup>
- Interpreting SFH measurements:
  - Always plot SFH measurements on a growth chart and compare to previous measurements. Refer for ultrasound when indicated.<sup>6</sup>
  - Ensure previous scan results and growth charts are reviewed at all appointments and actioned if required.
  - If an investigation or growth scan is requested ensure suitable follow up is arranged to review the results in a timely manner.
  - In this case Ms X had a raised SFH at her 28-, 33- and 36-week appointments. The mother could have been referred for a growth ultrasound scan at any of these times as per NICE guidance<sup>6</sup> to diagnose LGA and consider alternative causes of raised SFH e.g. polyhydramnios. This would have allowed time to provide suitable counselling on the risks of an LGA baby and the mother would have been afforded more time to consider her options.
- Diabetes and LGA:
  - There is no national guidance requiring testing for diabetes when fetal macrosomia or LGA is considered, however many local trusts pragmatically test and will advise so in local guidance. Please be familiar with your local guidance regarding this. If a mother is approaching term, alternatives to an OGTT such as home blood glucose monitoring may be considered.
  - An LGA fetus is not a good predictor of shoulder dystocia. It is not recommended by the RCOG that birth weight is used alone to predict shoulder dystocia<sup>2</sup>. However, the RCOG does recommend that caesarean birth is considered for diabetic mothers with a baby with EFW 4.5kg or more, due to potential "*morbidity*."<sup>2</sup> NICE also states that options for delivery are discussed when the baby is suspected as being LGA<sup>3</sup>.
- Investigating glycosuria:
  - NICE guidance suggests testing for diabetes if a mother has 1+ glycosuria on two or more occasions antenatally or 2+ glycosuria on one occasion or more.<sup>3</sup>
  - Ms X had antenatal visits at 28, 32, 36 and 38 weeks where glycosuria was detected. This was not investigated appropriately, and an opportunity to diagnose possible diabetes was missed.
  - A urine dip was not completed at Ms X's 33-week appointment, which was another missed opportunity.
  - At 38 weeks the midwife noted Ms X's glycosuria, but stated it was "*too late*" in the pregnancy to test for diabetes. If a mother is approaching term,

alternatives to an OGTT such as home blood glucose monitoring can be considered. The midwife should have discussed her concerns with a member of the diabetes team for further advice. The implications and risks of diabetes are still present and need consideration, regardless of late diagnosis.

- Holistic assessment of the mother through pregnancy is essential. If other risk factors had been considered together with the glycosuria she would clearly have been identified as at risk of diabetes: raised SFH measurements, history of previous macrocosmic baby and glycosuria.
- Discussing birth options:
  - For suspected fetal macrosomia at term, women should have options around birth discussed with them antenatally including the relative risks and benefits of induction of labour, expectant management and caesarean section.<sup>1</sup> Whilst no particular option is evidenced to be preferable, the mother should be fully informed and able to make her own choice as per national guidance.
  - In this case the growth scan indicated an LGA baby, however this was not discussed with Ms X. Had Ms X had such a discussion and opted for a caesarean birth the outcome for her baby would have been avoided. It is unknown if an induction of labour at an earlier gestation would have changed the outcome. For women without diabetes and suspected fetal macrosomia the options for birth are expectant management, induction of labour or caesarean birth<sup>8</sup>. There is uncertainty about the benefits and risks of induction of labour compared to expectant management, but with induction of labour the risk of shoulder dystocia is reduced compared with expectant management. For pregnant women with diabetes who have an ultrasound-diagnosed LGA baby, the risks and benefits of vaginal birth, induction of labour and caesarean section should be explained. We do not know that this woman had diabetes as investigations were not performed antenatally when indicated.
  - During labour, the delivery suite team noted the baby was LGA, however chose not to discuss this or any of the associated risks with the mother. The risk of PPH, shoulder dystocia, emergency caesarean, instrumental birth and perineal trauma should have been discussed including potential implications of these complications for mother and baby. Birth options including augmentation and caesarean section should have been offered.<sup>6</sup>
- Neonatal hypoglycaemia:
  - Neonates at risk of hypoglycaemia include infants of diabetic mothers but LGA itself is not currently considered a risk factor in national guidance.
  - Hypoglycaemia should be considered for macrosomic babies who are struggling with feeding or are otherwise unwell.

### Considerations for your hospital:



- Does your hospital have clear local guidance on the diagnosis and management of LGA/macrosomia?
- Are previous maternity records retrieved at booking to aid accurate risk assessment – This could be from another NHS Organisation.
  - NB under Caldicott Principles, we have a duty to share information for individual care just as we have a duty to protect patient confidentiality.
- Are tools available to aid counselling regarding birth mode in cases of suspected LGA?
- Do you have clear pathways for diabetes testing including at later gestations?
- Do you have clear guidance on glycosuria management?
- Do you have robust pathways to ensure timely review of growth scans?
- Does your hospital have a guideline for the recognition and management of impacted fetal head? Is this scenario included on multi-disciplinary staff mandatory training days?
- Does your Trust neonatal hypoglycaemia guideline reflect new British Association of Perinatal Medicine (BAPM) hypoglycaemia guidelines<sup>9</sup>?
- An impacted fetal head at delivery requires anticipation of a potentially compromised baby – do your neonatal escalation protocols reflect this?
- As part of your incident review, are you engaging with your Caldicott Guardian and DPO to review the data and sharing arrangements both locally and between other health and social care organisations for lessons learned?

### What has happened as a result?

This case story is illustrative. If a similar case were to occur in real life, then it would be referred to NHS Resolution's Early Notification Scheme. NHS Resolution's in-house, specialist teams will review all available information about the care received, to decide whether there is any evidence of substandard care which could potentially result in compensation.

The expertise of NHS Resolution is used to proactively assess the legal risk and provide early support to families where liability is established.

NHS Resolution supports an open, transparent discussion between clinicians and families following adverse events<sup>10</sup>. The scheme is also designed to improve the experience for NHS staff by time limiting the need for protracted involvement in the legal process and rapidly share learning.

It is very important to note that no amount of money is comparable with the loss of a child or a child living with lifelong neurological injuries. Where poor outcomes occur as a result of deficiencies in care, NHS Resolution aims to resolve all such claims or cases fairly and as quickly as possible.

The current compensation cost to the NHS for a baby who has long term severe brain injury is on average £13.5 million. The human costs to the babies, families and clinical teams involved are immeasurable.

### Resources:

1. National Institute for Health and Care Excellence Guidance: Inducing labour ([nice.org.uk](https://www.nice.org.uk)). November 2021.
2. Royal College of Obstetricians and Gynaecologists Green top Guideline No 42: Shoulder Dystocia ([rcog.org.uk](https://www.rcog.org.uk)) March 2012.
3. National Institute of Health and Care Excellence Guidance: Overview | Diabetes in pregnancy: management from preconception to the postnatal period | Guidance | NICE December 2020
4. National Institute of Health and Care Excellence Guidance: Recommendations | Intrapartum care for women with existing medical conditions or obstetric complications and their babies | Guidance | NICE April 2019.
5. National Institute for Health and Care Excellence Guidance: Intrapartum care ([nice.org.uk](https://www.nice.org.uk)) September 2023
6. National Institute of Health and Care Excellence Clinical care Summaries: Scenario: Antenatal care - uncomplicated pregnancy | Management | Antenatal care - uncomplicated pregnancy | CKS | NICE February 2023.
7. Perinatal Mortality Review Tool | PMRT | NPEU ([ox.ac.uk](https://www.ox.ac.uk))
8. National Institute for Health and Care Excellence Guidance: Caesarean Birth ([nice.org.uk](https://www.nice.org.uk)). March 2021.
9. British Association of Perinatal Medicine Guidance: Identification and Management of Neonatal Hypoglycaemia in the Full-Term Infant (Birth- 72 hours) ([bapm.org.uk](https://www.bapm.org.uk)) January 2024.
10. NHS Resolution: Saying Sorry. June 2017.



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Part of NHS Resolution's  
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