

LLETZ Talk About Depth:

A regional cohort of pregnant people with one previous medium LLETZ undergoing transvaginal cervical length screening

Dr Jennifer Newton, Dr Jennifer Bisland, Dr Gareth Waring, Dr Alexandra Patience, Royal Victoria Infirmary, Newcastle Upon Tyne.

Aim:

A regional review of outcomes, with regards to preterm birth (PTB) and cervical length screening results, in pregnant people with one previous cervical LLETZ procedure of depth 11mm – 15mm.

Methods:

Six months of data, collated from eight maternity units in the North East of England to identify patients with one previous LLETZ excision to a depth of 11-15mm (inclusive) and live birth >22/40 reviewed via the intermediate preterm pathway with a cervical length <25mm, incidence of delivery <37/40, Preterm Pre-labour Rupture of Membranes (pPROM), spontaneous PTB <34/40. Exclusion criteria: multiple LLETZ excisions, unknown depth of LLETZ excision cone biopsy, other co-existing PTB high-risk factor (previous PTB <34/40, previous cervical cerclage, previous trachelectomy, uterine anomalies).

References:

- 1)Aughhey H, Jardine J, Knight H, Gurol-Urganci I, Walker K, Harris T, Jan van der Meulen, Hawdon J, Pasupath D; Iatrogenic and spontaneous preterm birth in England: A population-based cohort study. BJOG, 08 September 2022; Volume 30, Issue 1; p 33-41
- 2)Eleazar E. Soto, Edgar Hernandez-Andrade, Erin S. Huntley, Sean C. Blackwell; Implementing a Universal Cervical Length Screening Program in a Large Hospital System: It Takes Some Time to Achieve Consistent Results. *Gynecol Obstet Invest* 20 June 2022; 87 (2): 124–132. <https://doi.org/10.1159/000524361>
- 3)Office for National Statistics; Birth Characteristics in England and Wales 2021. 10 March 2023. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthcharacteristicsinenglandandwales/2021#:~:text=The%20overall%20percentage%20of%20preterm%20groups%20to%20be%20preterm%20births.>
- 4)Thomson AJ, on behalf of the Royal College of Obstetricians and Gynaecologists. Care of Women Presenting with Suspected Preterm Prelabour Rupture of Membranes from 24+0 Weeks of Gestation. BJOG 2019;126:e152–166
- 5)Berghella V, Pereira L, Gariepy A, Simonazzi G. Prior cone biopsy: prediction of preterm birth by cervical ultrasound. *Am J Obstet Gynecol* 2004; 191: 1393–1397
- 6)Castanon A, Landy R, Brocklehurst P, Evans H, Peebles D, Singh N, Walker P, Patrick J, Sasieni P; Risk of preterm delivery with increasing depth of excision for cervical intraepithelial neoplasia in England: nested case-control study. 5 November 2014; 349:g6223
- 7)NHS England: Saving Babies' Lives: Version 3. 1 July 2023; <https://www.england.nhs.uk/wp-content/uploads/2023/05/PRN00614-Saving-babies-lives-version-three-a-care-bundle-for-reducing-perinatal-mortality.pdf>
- 8)Wuntakal, R., Castanon, A., Landy, R. et al. How many preterm births in England are due to excision of the cervical transformation zone? Nested case control study. *BMC Pregnancy Childbirth* 15, 232 (2015). <https://doi.org/10.1186/s12884-015-0664-3>

Results:

Over the six-month period, 88 women met the inclusion criteria. 11.36% of the cohort delivered before 37 weeks gestation. The incidence of spontaneous preterm delivery (<37/40) was 5.68%; A further 4.54% of preterm deliveries were iatrogenic due to maternal/fetal concerns (e.g. Pre-eclampsia, pathological CTG, growth restriction). *Figure 1* compares the rate of **spontaneous** preterm delivery of this cohort, 5.68%, to the rate provided by Jardine & Aughey et al (BJOG 2022), of 2.9%, whilst also demonstrating an overall preterm delivery rate of 6.1%, reviewing births from 2015-2017. The total (ie. Iatrogenic + spontaneous) preterm birth rate in 2021 for England and Wales was 7.6%. The rate of Preterm Pre-labour Rupture of Membranes (pPROM) at 4.55% increased in this cohort when compared to the national UK suggested rate of 3% (RCOG).

There was no correlation between specific depth of LLETZ within the 11-15mm range and gestational age at delivery, as demonstrated by *Figure 2* which also highlights that the majority of this patient population delivered at term.

The screen-positive rate in this cohort, with a shortened cervix <25mm in the second trimester, was 7.95%. Representing 7 of 88 people scanned. Each of those seven patients were offered intervention, with four patients receiving progesterone only, one receiving progesterone and a cervical cerclage, and two opting for conservative management in the form of serial cervical length ultrasound measurements (*Figure 3*). 40% of the patients who received intervention delivered at term, whilst 60% had a pre-term birth, all below 34 weeks gestation (Total of three patients delivering at 23, 32 and 33/40). The median depth of LLETZ in those with cervical shortening was 13mm with IQR of 3; Mode was 12mm.

Figure 3: Clinical Management of those with a cervical length <25mm between 16-25/40

- Progesterone
- Progesterone + Cervical Cerclage
- Conservative Management

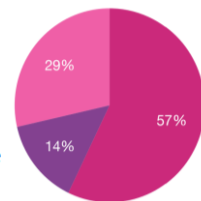
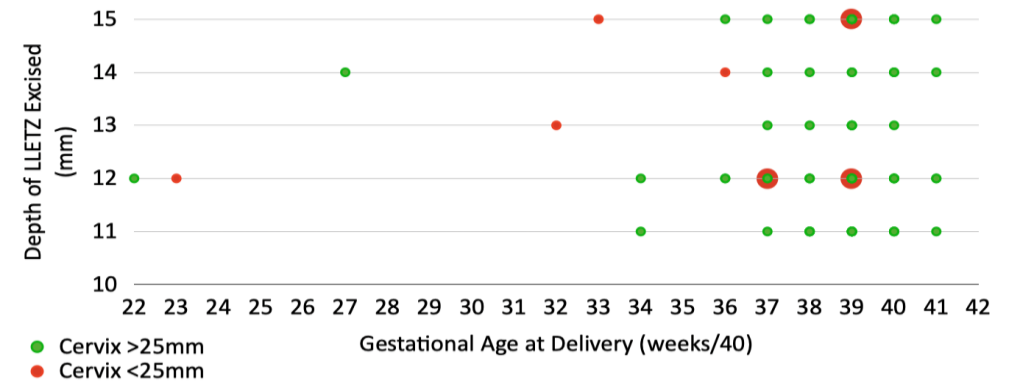


Figure 2: Depth of LLETZ vs Gestational Age at Delivery



■ North East - Previous 11-15mm LLETZ x 1
■ UK Data (all women)

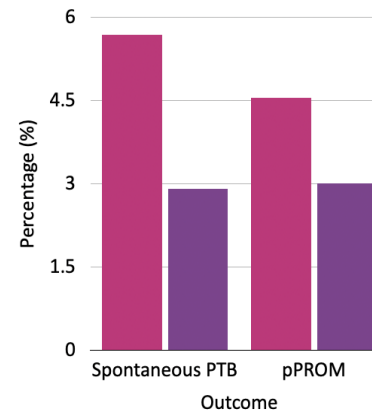


Figure 1: Regional data from the North East Cohort with 1 previous LLETZ 11-15mm, compared with UK national data on risk of;

- 1) Spontaneous preterm birth, and
- 2) UK rate of pPROM in all women (RCOG).

Discussion:

Given the physical, emotional and financial burden preterm birth has on families and NHS resources, one should consider the cost-effectiveness of continuing to include those with a history of 11-15mm LLETZ in PTB screening clinics. This allowed for 7.95% of our cohort to be counselled and offered intervention for a short cervix. In the general pregnant population, *Soto et al* (Gynecologic and Obstetric Investigation 2022), demonstrated via a universal CL screening, a cervix <25mm in only 2.2% (n = 22,207), whereas *Berghella et al* (AJOG 2004) showed this to be 16.4% in women with a ny previous LLETZ, depth unspecified. The elevated rate of spontaneous PTB observed in our group is consistent with the findings of *Castanon et al* (BMJ 2014) who observed a significant increase in spontaneous PTB rates (<36/40) in those with a 10-14mm LLETZ (relative risk 1.48, 1.09 to 2.01) when compared to individuals with a previous <10mm LLETZ excision.

With *Saving Babies Lives Version 3's* recently updated recommendation that only those with a LLETZ >15mm require intermediate PTB pathway and CL measurements, we will watch with interest whether this has any impact on our regional preterm birth rate.