

Midwife views on amniotomy to speed up labour



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Abstract

This dissertation considers the views of midwives on the procedure of amniotomy with the specific relevance of its use in speeding up labour. The available literature is considered in detail to try to establish the current evidence base for the assumption that amniotomy does speed up labour and it finds that the evidence is poor, both in terms of number and quality of the papers available. One of the biggest problems appears to be that it is very difficult to carry out a study that isolates the specific and unique effects of amniotomy on the speed of labour from all of the other potential confounding factors that can influence the eventual outcome.

There appears to be a gap in the literature in specific regard to the midwife's views on the subject.

A proposal is therefore made for a pilot project to evaluate the midwife's views by the means of a qualitative survey using the semi-structured interview technique. The rationale for such a study structure is discussed in detail.

Acknowledgements

(Client to personalise)

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Purpose of the study: The research question.

The procedure of amniotomy was first described in the 18th century. Despite having therefore been in constant use for over 200 years, its effect on the induction and the course of labour still remains a matter of dispute and conflicting evidence. (Greenwood C et al. 2003)

Amniotomy is generally held to be the artificial rupture of intact membranes with a view to facilitating, stimulating or inducing labour. (O'Driscoll K et al. 1986). This dissertation has purposely started with a definition of amniotomy that is over 20 years old. During the course of the exploration of the evidence base surrounding the procedure of amniotomy we shall consider whether this definition is still held to be true in current practice.

The procedure is typically done with gloved hands and the healthcare professional ruptures the amniotic sac with an amnihook (or similar instrument) between contractions, as this reduces the risk of cord prolapse because the amniotic fluid is under less pressure. (Kirby R S 2004). The hand is kept in the vagina allowing the fluid to drain in a controlled manner and <https://assignbuster.com/midwife-views-on-amniotomy-to-speed-up-labour/>

the nature (colour consistency and amount) of the fluid is noted. It would be considered good practice to assess the foetal heart both immediately prior to the procedure and again immediately after it to check for foetal distress due to cord compression. Many authorities advocate performing the procedure in the semi-sitting position in order to minimise the effects of aortocaval compression and thereby optimise the blood supply to the uterus. (Burnett A F 2000)

Indications for amniotomy still include the “ promotion of labour”. This can be taken to mean both the induction of labour and the speeding up of labour (Cunningham F G et al. 2005) however, hard evidence for either is difficult to find for reasons that we shall discuss.

Literature Review

What is already known?

For ease of presentation, this section will be divided up into various sub-headings considering the different aspects of amniotomy as a procedure

Amniotomy and induction of labour

Amniotomy is frequently cited as a means of inducing labour particularly if the cervix is considered to be “ ripe”. Unfortunately amniotomy alone is an unpredictable inducer of labour with the possibility of long intervals between amniotomy and the onset of significant contractions. The Mouldin trial considered a direct prospective comparison of amniotomy alone and amniotomy with an associated oxytocin infusion. The results showed a

statistically significant difference in the two groups with the latter group having a shorter induction to delivery interval. (Mouldin P G et al. 1996)

There is a huge variation in the literature concerning the ability of amniotomy to hasten the onset of labour. Some early papers suggested that the effect was only minimal (Caldeyro-Barcia R 1975) whereas the majority of others suggest a much more obvious effect. As with other areas of investigation, difficulty arises in trying to separate out the effects of the amniotomy from the myriad of other variable factors that are present when a woman goes into labour. Friedman questions whether amniotomy hastens labour at all since many of the prospective trials have considered the case when amniotomy is done in early labour when the contractions would naturally begin to accelerate in any event (Friedman, E. A 1998)

Complications associated with amniotomy

This is a particularly contentious area with different authorities citing not only different associations of complications but significantly differing incidences as well. If we consider the Sheiner paper (Sheiner E et al. 2000) we can show a number of significant findings when early amniotomy was compared with both premature rupture of membranes (PROM) and oxytocin induction of labour. The significant differences found between the groups included a higher rate of caesarean section with 26. 7% in the amniotomy group and 11. 6% in the PROM and 16. 9% in the oxytocin groups. It should be noted however, the authors performed a number of subsidiary analyses and showed that when the incidence of a previous caesarean section was controlled for then the amniotomy group had a similar incidence of

caesarean section to the other groups. This would imply that amniotomy is more likely to be considered an option when a previous caesarean section has occurred. The authors make no comment as to why they believe this might be.

A much larger and more rigorous survey (Segal D et al. 2000) reviewed the outcomes of nearly 2000 cases of early amniotomy performed in association with a poor cervical score (Bishop scores of <5) and compared them to a similar number who had a favourable cervical score (Bishop scores >5). In this particular study, the first group had double the number of caesarean sections when compared to the second (26% vs. 13%). What is also significant in this survey is the fact that the group that had amniotomy with a low Bishop score failed to progress in the first stage of labour three times more frequently than the group where the cervix was more favourable. Once the second stage of labour had been reached the incidence of caesarean section was the same for both groups.

Amniotomy has been shown to increase the incidence of abnormalities in the patterns of foetal heart rate. (Goffin F et al. 1997) Again this effect is hard to isolate convincingly as the risk may be consistently underestimated because women who do not have amniotomy are more likely to be given oxytocin which also increases the incidence of abnormal foetal heart rate patterns. (Rouse D J et al. 1999)

Amniotomy may also be associated with an increase in infection rates. (Ventura S J et al. 1997)

What are the perceived benefits of amniotomy?

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A number of authoritative texts state that routine early amniotomy can shorten labour by a variable amount, usually one or two hours (viz. Vincent M (2005) and Sheiner E, et al. (2000) and Albers L L et al. (1996)), Others suggest that it may reduce the use of oxytocics and the number of women who report the most intense degrees of pain during labour. (Klaus M H (1998)

This picture is however, clouded by the fact that modern practice with its use of oxytocin (which makes labour more painful) and analgesia, including the epidural, which obviously reduces the overall pain experience, makes the statistical analysis of the relationship between amniotomy and pain very difficult

Amniotomy has been cited as being indicated when there is a need for closer monitoring of the foetus allowing the direct attachment of scalp electrodes and incidentally evaluating whether the baby has passed meconium into the amniotic fluid. (Thornton J G et al. 1994). The presence of meconium is a significant clinical sign and is associated with an increased foetal morbidity and mortality (Ramin K D et al. 1996) Although its observation is enhanced by amniotomy, it is only of peripheral relevance to our considerations in this dissertation and therefore will not be considered further. Other authorities observe that this is not a good indication for amniotomy as the release of the amniotic fluid may expose the umbilical cord to increased compression during contractions. (Klaus M H 1998)

Amniotomy also allows the positioning of an intrauterine pressure catheter in order to measure uterine contractions.

Does amniotomy speed up delivery?

This is an issue that has appeared in many older papers. A significant trial of 20 years ago (Seitchik J et al. 1985) concluded that the procedure of amniotomy appeared to enhance the cervical dilatation rate in patients with already well-dilated cervixes and that are already dilating at a satisfactory rate and it conversely slows dilatation in some other patients, particularly those whose cervixes are less dilated. This finding is cited in a number of contemporary text books. The difficulty is that the findings in this paper are only evidence base level 3. Many other papers refer to the trophic effects of amniotomy but none have had the discriminatory power to isolate the effects of amniotomy from the multitude of other variables which are inevitably present during the process of labour.

The paper by Sherman (Sherman D J et al. 2002) primarily considers the patterns of foetal heart rate during the induction of labour and, in doing so, provides circumstantial evidence that amniotomy increases the speed of labour. Amniotomy was however, only performed in this trial if the cervix had dilated to more than 3 cms. without an associated spontaneous rupture of membranes. Oxytocin was also used in a significant number of cases thereby masking any effect which amniotomy alone might have.

A different view is expressed by Pozaic who considered the case proven and puts forward the view that amniotomy should only be reserved for cases where there is abnormally slow progress of labour and then amniotomy should be performed to speed up the process. Again this is little more than

level 4 evidence as the author does not cite what her evidence base is for making such an assumption. (Pozaic S 2004)

To present a balanced argument one can cite the work of Steer (actually written when he was a house officer but then went on to become a professor of obstetrics), who published a controlled study of two matched groups of patients, all of whom had oxytocin induced labour. One group had their membranes ruptured and the others were allowed to rupture spontaneously. Steer found that the duration of labour was shorter in all patients who had ruptured membranes although, for reasons that were not explained, the uterine contractions were found to be at their greatest when the membranes were intact. In short, there was no evidence that amniotomy increased the speed of labour and there was evidence to suggest that the uterine activity was greatest in the group with membranes intact until well into labour. (Steer P J et al. 1975)

Midwife's views on the subject

In terms of determining midwife's views on the subject, there appears to be an almost complete gap in the literature on the subject. Extensive searching reveals no definitive authoritative texts on the subject and a very few that have sought the patient's view on the issue. The Lavender paper (Lavender T et al. 1999) considered the issue only peripherally as part of a larger exploration of patient's views and concluded that women who had long and protracted labours welcomed virtually any type of intervention that was perceived to reduce the time in labour and this included amniotomy. Clearly it is likely that this was perceived by the women as a "labour shortening

procedure” and it is very unlikely that any discussion of informed evidence base would have taken place prior to its use.

These issues are explored further in the more recent and larger qualitative investigation by Hodnett who considered the experiences and evaluations of childbirth in terms of overall pain experience. The paper is long and involved and, in the main, peripheral to our considerations here other than the fact that one of the main factors that the women cited as significant in terms of their positive appreciation of the process of labour was their perception of the attitude and behaviour of the midwives and this was rated as being more significant than the actual procedures that they employed. This finding appeared to override other factors including such variables as “ age, socioeconomic status, ethnicity, childbirth preparation, the physical birth environment, pain, immobility, medical interventions, and continuity of care”. (Hodnett, E D. 2002). One can only therefore speculate as to whether this finding vicariously influences the decisions made by the midwives in terms of trying to provide a complete service to their patients.

Another paper which is peripherally relevant to this issue is the well written and thought-provoking essay and investigation by Sookhoo (Sookhoo M L et al. 2002) which considered the wider issues of how midwives learn their clinical skills and the mechanisms by which they acquire their practical knowledge. The authors devote a substantial proportion of their paper to how this knowledge actually influences their professional judgements in both the assessment and the progress of the course of labour.

This particular paper is worthy of examination on several levels, not only for its actual content and results, but because it is structured on a grounded theory premise and conducts a number of semi-structured interviews and then attempts to construct theories from the results. It is very significant that a major finding in this paper was that the authors hypothesise that a major determinant of clinical activity for a midwife is the way in which she conceptualises uncertainty (which clearly is a major element in the management of labour). It is also significant that they found that one of the major techniques for avoiding uncertainty was to rely upon conventions and put trust in specific procedures “almost as a ritual”. The authors suggest that the experienced midwife tends to draw upon a much wider range of evidence and experience which has been accumulated through their clinical practice than the novice midwife who tends to rely on guidelines and strategies which they tend to see as predictive and protective. This has great relevance to the practice of amniotomy as Sookhoo et al. found that the experienced midwives tended to avoid inappropriate intrusion into the process of labour as a matter of routine. We should therefore be aware that amniotomy may be conceived as “inappropriate intrusion” by the experienced midwife and our study should perhaps be structured to evaluate this possibility.

Perhaps the last word on this subject should go to the overview of the subject published by Katz

Early amniotomy remained an independent risk factor for operative delivery on multiple logistic analysis controlling for confounding variables. These findings imply that caution is needed when deciding to perform early surgical

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induction unless it is a final option or other approaches are contraindicated.

(Katz, Miriam 1999)

Methodology

Search history.

The mechanism of the literature review was to conduct a number of literature searches through both electronic and hard copy data bases at the local University Library and the local Post Graduate Library (client to personalise). A number of search terms were used including: amniotomy; amniotomy knowledge; amniotomy indications; amniotomy benefits; amniotomy complications; amniotomy speed of labour; midwife views amniotomy; midwife procedures. The electronic databases included Bandolier and The Cochrane Library and Cinhal. These searches provided a great many texts which were accessed either electronically or in hard copy and then critically reviewed to ascertain the level of the evidence presented. The level of evidence was categorised into the following levels.

Classification of evidence levels

Ia Evidence obtained from meta-analysis of randomised controlled trials.

Ib Evidence obtained from at least one randomised controlled trial.

IIa Evidence obtained from at least one well-designed controlled study without randomisation.

IIb Evidence obtained from at least one other type of well-designed quasi-experimen

study.

III Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.

IV Evidence obtained from expert committee reports or opinions and/or clinical experience of respected authorities.

The highest level of evidence available was then used to support each point raised

Research question or hypothesis

It appears to be generally accepted that evidence based practice should be the “ gold standard” of modern clinical practice (NMC 2004). However, many experienced healthcare professionals would attest to the fact that clinical decisions in their everyday practice is still influenced by individual experience and advice from colleagues. (Williams P R 2000). The rationale behind this study derives from the suspicion that many midwives use amniotomy to speed up labour and that there appears to be little in the way of a hard evidence base to support this view.

It is the intention of this study to try to define the degree that individual midwife practice is determined (in this specific regard) by their own experience and professionally received advice and to what extent it is determined by reliance on their own independently derived evidence base.

Study design

This study will be qualitative in design. There are a number of different qualitative approaches that could be adopted (DeWalt, K. M et al. 1998) and brief consideration will be given to each. The phenomenological approach is primarily a philosophical mechanism which employs that technique of concentrating on the conscious and subjective experiences of the subjects. (Hammond et al, 1995). It is therefore written from the first person viewpoint. Such an approach is not without its critics however, as the classic approach is from the third person (impersonal) viewpoint (Ahmed, 2006).

Hammond characterises the phenomenological genre as “ unconstrained by scientific rigour” as it is simply a recording of the experience as the observer experiences and interprets it. It is therefore not purged of subjectivity and bias as many other scientific approaches are. The phenomenological approach was considered for this project and discounted as it is conceded that such an approach may give rise to a very idiosyncratic view of the subject and may not be representative of the majority view.

Grounded theory may, at first sight, appear to be a suitable approach for this study. The prime element in a grounded theory study is the fact that the data is obtained and then the investigators then attempt to formulate or identify appropriate theories from the processed data. (Glaser, 1992). This approach may seem suitable by virtue of the fact that midwives could be approached and data obtained to see if there are any constant factors which motivate their particular pattern of behaviour when considering the procedure of amniotomy. A problem may arise however, because of the intrinsic need for theory formulation.

Charmaz characterises the problem by stating “ It compels the researcher to impose explanations where no explanations naturally exist, or indeed are necessary”. (Charmaz, K. 2006). In this study it is the intention to explore midwife’s views on whether amniotomy increases the speed of labour rather than to specifically generate theories to explain these views. For this reason grounded theory was discounted as a possible approach

After much consideration it was decided to adopt an ethnographic approach to the study. This involves a hybrid approach with an analysis termed by Agar as being from the point of view of “ The professional stranger” (Agar, 1996). This approach has elements of both qualitative and quantitative analysis and is primarily carried out using the analysis of “ in the field” interviews of midwives.

Kottak describes the ethnographic approach (in the broadest terms) as collecting data “ in the field by living among and blending in with a particular group, society or culture, observing and recording their particular habits and detailing their experiences and reactions” (Kottak, 2005). The researcher is expected to be a part of the community studied but to “ retain a certain degree of detachment, impartiality and objectivity” (Kottak, 2005). The object of this study requires the observer to record the number of times a midwife uses the procedure of amniotomy and then to obtain her views on the rationale for the procedure through the mechanism of the semi-structured interview.

Sample

Constraints on time and finances will largely dictate the overall size of the project (client – I have no idea what potential funds you have available for this project so I have made a number of assumptions that you will have to modify if they are not correct). It is considered prudent to make a pilot study in order to test the validity of the interview questions and to also trial the analysis techniques. The initial pilot would be in the labour ward of the author's hospital (client to personalise here) and would therefore potentially include 12 midwives.

If the study were to yield potentially significant findings, then its scope could be widened to include staff from different sites and thereby include perhaps different protocols and possibly different work practices. This would have the benefit that it is possible that certain work practices may be determined by peer pressure in a specific geographical location and broadening the scope of the investigation would help to minimise the biasing effect of such practices. (Rosner B 2006). There is also considerable merit in trying to ensure that the cohort of midwives studied contains a wide spectrum of experience, ideally from the newly qualified midwife through to the most experienced, as it would be unlikely that the work practices would be the same in all groups. (Strauss, A et al. 1990). It is therefore clearly of benefit to try to structure the sample to include representatives from all of these groups in order to minimise the effects of such potential bias. (Carr L T 1994). It follows from this requirement that the study group will be asked to provide information relating to their years of experience in addition to other demographic markers.

Analysis of the pilot study will help to determine whether purposeful sampling or general sampling will be appropriate in the final study. (Moher D et al. 1999). In the former method, subjects are specifically chosen because of the likelihood of their being able to give valuable information to the study. Patton describes this method of recruitment as “ selecting only a limited number of information-rich cases for investigation, in order to obtain a particularly detailed insight into an issue. (Patton 1999). Although this may be, at first sight, useful in trying to maximise the information yield of the study, it has the obvious downside that it is a source of considerable potential bias giving rise to a small and potentially unrepresentative sample. (Patton 1999). A variation of this technique of recruitment is called snowballing whereby one key subject is asked to recommend others who may have either specialist knowledge or a specific interest in the subject in question. This technique is recommended by MacQueen as “ being particularly suitable in qualitative studies, where detailed and in-depth understanding of a little-known subject is required” (MacQueen K M, et al. 2004). Although this clearly has the ability to optimise the collection of significant information, it does not eliminate the potential for bias apparent in the purposeful sampling technique. If we consider that amniotomy is a widely used practice amongst midwives, then neither method is sufficiently useful to outweigh the potential bias that they would engender. For these reasons it is considered appropriate to approach all of the midwives in the local unit to take part in the study.

Data Collection

In line with the principles of the ethnographic approach, this study will adopt the dual mechanisms of direct observation and the semi-structured interview. (Breakwell et al, 1999). The semi-structured interview technique is explored in depth by De Martino who contrasts the technique with unstructured and fully structured interviews. The former “ essentially amounts to an informal conversation with no guiding principles, and structured interviews are characterised by the asking of a predetermined and fixed set of questions with strict guidelines. Semi-structured interviews however, entail asking a preset group of questions but with some flexibility, so that interesting leads can be explored further” (De Martino B et al. 2006). The semi-structured interview technique is considered to be the most useful for this type of study because of the lack of rigid constraints placed upon both interviewer and subject. The questions are designed to be “ open” thereby allowing the subject to introduce appropriate topics which can then be followed up at the interviewer’s discretion. This flexibility is perhaps the most appropriate for this type of study as the interviewer does not know in advance just what factors influence the midwife’s opinions.

Frey broadens the issue by suggesting that, in this context, attitudes of the subjects can be typically analysed in any of three “ dimensions”, namely: emotion, cognition, and behaviour. (Frey et al. 2001). It might therefore be important to structure the semi-structured interview questions so that they cover all three of these dimensions. Typical examples in this regard might be

(a)“ How does performing as amniotomy on your patients make you feel emotionally?”

(b)“ What are your views about amniotomy and the speed of labour?”

(c)“ How do you actually choose to speed up your patient’ s labour?”

This may not prove to be completely relevant, as one could suggest that emotional involvement is actually counterproductive in this particular circumstance. It is clear that a large element of discretion will have to be left with the interviewer as it is likely that the answers given may clearly be either carefully considered and evidence based on one extreme or superficial and unconsidered on the other. This flexibility will allow the subject to impart their own intention without being unduly hampered by rigid questioning and should allow the emergence of a detailed set of data which reflects each individual midwife’ s opinions and practices clearly. (Concato, et al. 2000)

In addition to the semi-structured interviews there will also be an element of direct observation to ascertain the labours that are managed with amniotomy and to contrast them with the labours that are managed without the procedure. It may well be of considerable value to include an element of questioning in the semi-structured interview phase that asks about the rationale for performing the procedure

Data Analysis

Data analysis can be carried out using time-honoured methods originally developed in the social science setting with various qualitative analytical methods. (Vickers, A. J et al. 2001). The most commonly used is probably thematic analysis (Braun V et al. 2006) which involves coding the themes that are derived from the responses. The themes are initially identified

during the semi-structured interview stage and are then assigned a code (or number) depending upon the frequency with which the various subjects refer to the particular theme. From reading Braun it is apparent that there is considerable flexibility in the coding and identification of the themes (which is in contrast to the mechanisms described for both grounded theory and other forms of qualitative analysis). Some authorities find that this flexibility and lack of proscription is a negative feature of the thematic approach but Braun argues that it enhances the quality of the analysis by allowing a “richness of analysis not provided for by other methods”. (Braun V et al. 2006). This is clearly a complex exercise and it will be attempted in the pilot study by the author, but it is accepted that it may be more appropriate to enlist the help of an experienced researcher to assist in the analysis of the full project

It is considered likely that the various themes will be obvious from the data obtained. Braun suggests a five stage mechanism for optimum data retrieval, namely:

(1)Familiarising oneself with the data.

(2)Developing a coding system and identifying bits of data consistent with specific codes.

(3)Looking for and identifying themes in the data

(4)Labelling or naming the themes identified, with appropriate justification (e. g. quotations from interview transcripts)

(5)Writing up the report, including data extracts, in a compelling fashion.

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(Braun V et al. 2006).

The interviews will be initially tape recorded and then transcribed in order to allow for identification of the various themes. It is clearly likely that the themes will be expressed in different terms by different subjects and therefore a degree of latitude will be needed by the interpreter to ensure that similar themes will be included and analysed together. (Berlin J A et al. 1989)

Rigour

The value of any study ultimately depends upon the rigor with which it is conducted. (Green J et al. 1998). It is in the very nature of a qualitative study that it does not intrinsically possess the precision of the classical quantitative study. It is therefore of great importance that attention is paid to reliability and repeatability during both the design and execution stages of the study. Triangulation is one mechanism that can help in this regard. (Piantadosi S. 1997). This requires comparison of the results obtained by one method with those obtained by another. The classic structure is to see whether the data obtained from the study matches with that obtained from subject feedback. (Leaverton PE. 1998). Berwick also suggests that any apparently aberrant or atypical cases should be examined as these will help to establish the overall validity of the study. (Berwick D. 1996)

Ethical Issues

It is central to the instigation of any study that the approval of a Local or National Ethics Committee