

Research Article

Improving Explanation of Fetoplacental Examination by Healthcare Professionals: Usefulness of A New Pedagogical Tool

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Introduction

The aim of the fetoplacental examination (FPE) is to search for and define as precisely as possible the causes of death of a stillborn child, of a live-born child then deceased, or to point to a genetic or environmental cause of fetal malformations leading to a Termination of Pregnancy (TOP). FPE is the gold standard for the management of fetuses resulting from pregnancy failure. It confirms the antenatal

diagnosis in around 75% of cases and reveals new anomalies in almost 40% of cases [1,2]. Clinical situations in which FPE can be performed include spontaneous terminations of pregnancy, TOPs and neonatal deaths occurring during the first month of life. FPE enables exhaustive phenotyping of placental and fetal anomalies, essential for establishing the final diagnosis or suggesting diagnostic leads.

Abstract

Objectives: Fetoplacental examination (FPE) is the gold standard for the management of fetuses following pregnancy failure. However, there is a high parental refusal rate of FPE. Half of healthcare professionals doesn't feel comfortable approaching the subject with parents, and only 8 % of them had received specific training concerning FPE procedure. The objective was to create a new teaching tool to explain the principles and interest of FPE, and help better understand the care pathway in the context of a FPE request.

Methods: We developed a new educational tool in the form of a video, designed for healthcare professionals and couples concerned by a FPE. A questionnaire was used to evaluate this new tool, divided into two parts, before and after viewing the movie, in order to assess the contribution and interest of the video.

Results: 114 healthcare professionals answered the questionnaire, 58% being medical doctors actively involved in the management of pregnancy failure. All of the participants were attached to a fetal medicine center. Only 56% of the participants had attended courses on FPE. However, 52% often offer couples a FPE. The large majority of participants deemed this new teaching tool useful. More than half of the professionals recommend the video to students, and almost half to colleagues. **Conclusions:** The evaluation of our movie suggests that this 7-minute video not only helped the healthcare professionals to better understand the FPE procedure and impact, but also provided a new information support readily accessible for couples.

Keywords: Fetoplacental examination; Perinatal autopsy; New pedagogical tools; Teaching movie

The subsequent management of the couple would then be based on a range of arguments, among which FPE is central, as the reference exam in the exploration of the causes of pregnancy failure.

FPE is a medical examination that takes part of the continuum of care provided to the fetus and is carried out with respect of the body. It consists in several steps: analysis of the pregnancy history, external and internal examination (autopsy), skeletal X-rays, sampling and histological examination of all organs and medical report. It ends with integumentary restoration. In accordance with current legislation, FPE is carried out with explicit written consent of the mother or of both parents in the case of a live-born child, to whom the purpose, constraints and limits of the FPE were explained. FPE is difficult to discuss with parents, and information is not always provided in optimal conditions: limited consultation time, delivered by a caregiver who does not carry out this examination, little or no training of healthcare professionals on the subject, and the emotional context of the couples [3-5].

To help healthcare professionals providing couples with the principles and interest of FPE, the French Society of Fetal Pathology (SoFFoeT) made available an information leaflet to reinforce the information given orally by healthcare professionals (Figure 1) (<http://soffoe.fr/wp-content/uploads/foetopathologie-print.pdf>). Despite the proven usefulness of FPE and the existing explanatory material, the refusal

Table 1: Results of the prospective study undertaken in the hospital center of Metz-Thionville over the period February to August 2020 on 106 healthcare professionals questioned.

Theoretical knowledge:
92.5% of respondents had already attended an FPE.
87.7% were familiar with the process.
37.7% of respondents were aware of the FPE refusal rate in France.
According to the caregivers, the reasons given for refusal were:
-Religious/cultural reasons (94.3%).
-Invasive nature of the procedure (72.6%).
-Desire to protect their baby, "so it doesn't suffer any more" (60.4%).
-Belief that the examination will not provide more information (51.9%).
-Lack of information from the medical profession (32.1%).
-Fear that the fetus and/or its organs will be preserved and displayed "like in a museum" (12.3%).
-Need to transfer the body to another facility (10.4%).
According to caregivers, the reasons that might convince patients to undergo this examination would be:
-Influence of results on a future pregnancy (98.1%).
-Usefulness of the examination for making a diagnosis (90.6%).
-Assurance that the examination is performed with respect for the body (84%).
-Scientific interest/inclusion in studies (12.3%).
-Influence of medical staff/advice (13.2%).

rate remains high as shown by the study we conducted between 2015 and 2018 at the hospital CHR Metz-Thionville (5500 births), which showed a high parental refusal rate for FPE, ranging from 38.5 to 57%. Arguments put forward to explain this rate were the outsourcing of FPE, the invasive nature of the procedure, the circumstances in which it was performed (particularly the timing with regards to parents dealing with fetal death), and the information provided to parents by healthcare professionals. In the study, the aim was to determine how the level of knowledge of healthcare professionals could impact parents' acceptance of FPE. This study, carried out at the hospital center of Metz-Thionville over the period of February to August 2020 on 106 healthcare professionals (Table 1), showed that 77.4% of them had already broached the subject of FPE with a patient or couple and that only 52.8% felt comfortable approaching the subject with patients. Only 8.5% of those questioned had received specific training in dealing with FPE, but 89.6% of them thought that specific training would be useful. Moreover, 100% of those questioned considered FPE useful and would recommend it to couples. The conclusion of the study was that healthcare professionals need to be, on one side, instructed about FPE and, on the other side, trained to FPE presentation to parents.

Our project was to create an educational tool for both, healthcare professionals and parents confronted to pregnancy failure, readily accessible via internet and suitable for persons with sensory deficits.

Methods

We developed a new educational tool in the form of an explanatory video, designed for both healthcare professionals and couples concerned by a request of FPE. The aim was to reinforce the information given orally by healthcare professionals by a



Figure 1: Information leaflet on fetoplacental examinations available free of charge online, published by the French Society of Fetal Pathology (SoFFoeT) and AnDDI-Rares network.

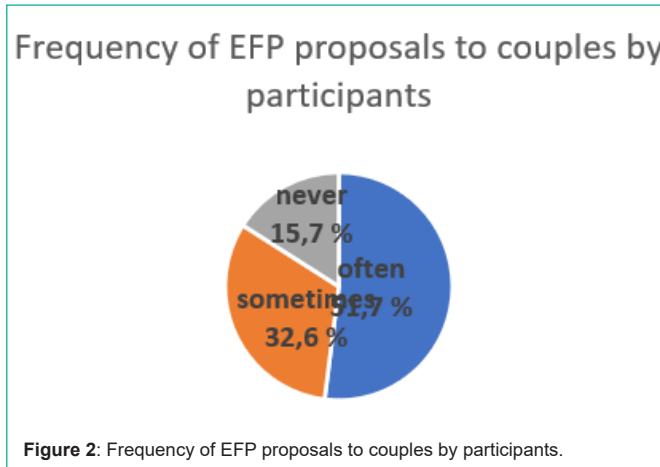
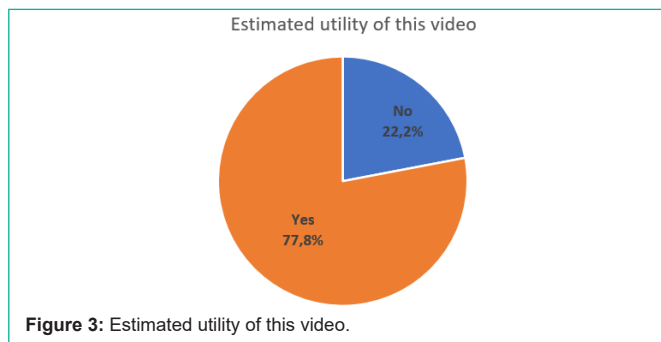


Figure 2: Frequency of EFP proposals to couples by participants.



readily accessible support, to provide guidance to professionals for the explanation of principles and interest of FPE, and to help couples better understand the care pathway in the context of a FPE request. This project was carried out in collaboration with the SoFFoet working group and funded by the AnDDI-Rares European network dedicated to rare diseases associated with developmental abnormalities. The characters and scene specifications and the various scenarios were written during different meetings with the members of the working group. The production of the video was subcontracted because of the specialized skills required and was completed with filmed shot in Toulouse hospital with a dedicated film crew. The link to the video is available online at <https://www.youtube.com/watch?v=r1oCNCqKBIQ>.

Study Procedure

A questionnaire was used to evaluate this new tool (Table 2). The questionnaire was divided into two parts, one to be used before viewing the film, the other after, to assess the contribution and interest (teaching and tool) of the video. These questionnaires enabled us to evaluate both the teaching method and our learners' learning. The questionnaires were distributed throughout France via the AnDDI-Rares network (through rare disease reference centers managers), the French Society of Genetic Counselors, the French Federation of Prenatal Diagnosis Centers, the members of the AFGC (Association Francophone de Génétique Clinique) and the midwives' network.

1) We can separate our questions into three groups, according to the intended objectives of the questions: Part of the questions concerned information about the target population, with the aim of assessing learners' potential need for a new teaching tool:

Have you had any courses or training on fetoplacental examination?

Have you ever attended a fetal autopsy?

Do you ever offer couples a fetoplacental examination?

Do you feel comfortable discussing fetoplacental examinations with couples?

Would you be interested in more precise informations about this examination?

2) Part of the questions was designed to assess the learner's basic knowledge and learning from the video:

Is placental examination useful in interpreting fetal autopsy?

Do you know the difference between a medical autopsy and a forensic autopsy?

Does a fetal autopsy require parental consent?

What are the objectives of a fetoplacental examination?

These questions were asked twice, before and after viewing the video "After viewing this video, of questions 8 to 13, would you change your answers?"

3) Part of the questions was aimed to evaluate the teaching itself and, therefore, the pedagogical tool:

Did you learn anything from this video?

Who would you recommend this video to?

What additional information would you have liked to see in this video?

Was this video useful to you?

Do you think this video will make it easier for you to discuss fetoplacental examination with couples?

Participants

The questionnaire was addressed to a diverse population of practitioners involved with couple follow up following pregnancy loss (gynecologists, geneticists, genetic counselors, midwives) via French professional networks.

Results

Questions and Information About the Target Population

114 healthcare professionals responded to the questionnaire, with a majority of medical doctors (58.8%), 25 midwives (21.9%), and 16 genetic counsellors (14.0%). The remaining responder concerned nurses, social workers, medical interns, psychologists, technicians, and midwives' students. The majority of participants (73.8%) worked in a university hospital center, whereas only 10 worked in a general hospital center (11.2%). The remaining participants worked either in a clinic or in private practice. 100% of the participants worked in a center attached to a fetal medicine center. To the question "How long have you been working at your center?" the answers varied widely, from 2 months to 40 years.

Assessment of the Learner's Basic Knowledge - Pre-Viewing the Movie Answers

Only 56% of the participants had attended courses or training courses on FPE, while 44% had never done so. Only 34.8% of the overall participants had attended a fetal autopsy. However, 51.7% of our participants often discuss FPE with couples, and 15.7% never do (Figure 2), independently of their own training about FPE.

77.5% of learners answered that they knew the difference between a medical autopsy and a forensic autopsy. 100% knew that fetal autopsy is a medical examination requiring parental consent. To the question "What do you consider to be the objectives of the FPE?", left deliberately open, only one participant did not answer. Expected answer were:

- To confirm/verify anomalies suspected in the antenatal period

- To search for associated signs/malformations to guide etiological diagnosis

Table 2: Questionnaire created for the present study.

This questionnaire will help you identify the information tools you need to develop to complement your knowledge in supporting parents during the fetoplacental examination.

We suggest you answer part 2 of the questionnaire after viewing the video.

PART n°1			
Number	Questions	Answers	Your additional comments
1	You are	<input type="checkbox"/> doctor <input type="checkbox"/> midwife <input type="checkbox"/> psychologist <input type="checkbox"/> genetic counsellor <input type="checkbox"/> other, specify: _____	
2	Your work in	<input type="checkbox"/> a CHU <input type="checkbox"/> a clinic <input type="checkbox"/> a CHG <input type="checkbox"/> private practice	
3	Is your center attached to a fetal unit?	<input type="checkbox"/> yes <input type="checkbox"/> no	
4	How long have you been working at your center?		
5	Have you had any courses or training in fetoplacental examination?	<input type="checkbox"/> yes <input type="checkbox"/> no	
6	Have you ever attended a fetal autopsy?	<input type="checkbox"/> yes <input type="checkbox"/> no	
7	Do you ever propose couples a fetoplacental examination?	<input type="checkbox"/> never <input type="checkbox"/> sometimes <input type="checkbox"/> often	
8	Is placental examination useful for fetal autopsy interpretation?	<input type="checkbox"/> yes <input type="checkbox"/> no	
9	Do you know the difference between a medical autopsy and a forensic autopsy?	<input type="checkbox"/> yes <input type="checkbox"/> no	
10	Is a fetal autopsy a medical examination that requires parental consent?	<input type="checkbox"/> yes <input type="checkbox"/> no	
11	What are the objectives of the fetoplacental examination?		
12	Do you think a fetoplacental examination is useful?	<input type="checkbox"/> yes, for couples <input type="checkbox"/> yes, for research <input type="checkbox"/> yes, for both <input type="checkbox"/> no	
13	If parents refuse, do you offer alternatives, and if so, what are they?		
14	Are you familiar with the free online information leaflet on fetoplacental examinations, published by SoFFoeT and the AnDDI-Rares network?	<input type="checkbox"/> yes	
15	Do you ever use it?	<input type="checkbox"/> no <input type="checkbox"/> yes	
16	Are you comfortable discussing the fetoplacental examination with the couple(s)?	<input type="checkbox"/> no If not, what would make it easier for you to get started? <input type="checkbox"/> other, specify: _____	
17	Would you be interested in finding out more about this exam?	<input type="checkbox"/> yes <input type="checkbox"/> no	If so, click here to view the video
PART n°2			
18	Did you learn anything from this video?	<input type="checkbox"/> no <input type="checkbox"/> yes, specify: _____	
19	Who would you recommend this video to?	<input type="checkbox"/> colleagues <input type="checkbox"/> students <input type="checkbox"/> other, specify: _____	
20	What additional information would you have liked to have seen in this video?		
21	After watching this video, from questions 8 to 13, would you change your answers?	<input type="checkbox"/> no <input type="checkbox"/> yes	
22	Did you find this video useful?	<input type="checkbox"/> yes <input type="checkbox"/> no	
23	Do you think this video will make it easier for you to talk FPE with couples?	<input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> not concerned	

Table 3: answers to the open-ended question "What would make it easier for you to approach this process?".

1	Attend autopsy
2	Attend an autopsy and know what's going on
3	Having clear, concise explanations to give them
4	How to present it without frightening parents
5	Precise explanations perhaps provided by a brochure
6	I don't think it's my job to do that
7	Better personal knowledge and more precise objectives to identify the pathology
8	Faster return of the body
9	Better knowledge of this examination to be able to explain it to parents
10	Better understanding of the FPE procedure and statistics on the causes found
11	Better understanding of the steps involved
12	Better understanding of the examination
13	More knowledge
14	If I were to discuss this issue with couples, I would like to have a document outlining FPE, to give the couple some pointers and explain the advantages of this examination.
15	Maximum knowledge
16	A clear and precise explanation of what happens during the examination
17	Training
18	knowledge

- To clarify genetic counselling and/or the risk of recurrence in future pregnancies

- To adapt and supervise the management of subsequent pregnancies +/- of relatives

The words "cause" or "explain" or "understand" or "diagnosis" or "etiological" or "referral" were found in 88.6% of responses. The words "prevention/prevent", "subsequent advice", "genetic advice", "next pregnancy", "risk of recurrence", "consequences for subsequent pregnancies", "risk of recurrence", "obstetrical management for next pregnancy", "adaptation of the management of a future pregnancy" were found in 30.7% of responses. The words "check ultrasound anomalies", "confirm antenatal", "confirm ultrasound signs", "confirm", "correlate with antenatal data", "check what was seen on ultrasound", "correlate imaging/fetal pathology" were found in 14.8% of responses. Scientific interest was mentioned in only 6.8% of responses: "better understanding of genetic problems", "understanding pathology", "adding to our medical knowledge", "additional information to help interpret genetic data", "clarifying the pathophysiological process", "enriching knowledge". Interestingly, one participant noted that it "contributes to the grieving process". 91.1% of healthcare professionals considered FPE useful for both couples and research. More importantly, none of the healthcare professionals considered the examination useless. In the event of parental refusal, 71.1% of healthcare professionals proposed alternatives to couples, mainly an external examination (47.6%), DNA storage (36.5%) and/or fetal imaging (65.1%).

66.7% of participants were unaware of the free online FPE information leaflet published by SoFFoET and the AnDDI-Rares network (Figure 1). 83.3% replied that they did not use it (only 16.7% do). Only 63.3% of healthcare professionals responded that they felt comfortable discussing FPE with couples, this group of respondents comprising both, FPE-trained and untrained professionals.

- To the open-ended question "What would make it easier for you to approach this process?", we obtained 18 responses (Table 3), including: 2/18 would like to attend autopsies;

- 12/18 would like "clear explanations", "precise explanations",

Table 4: Healthcare professionals' free comments on the video. (*PDC: Prenatal diagnosis center).

1	A lot of couples are looking for information on Internet, and this can be an additional tool for doctors to help them understand what a fetoplacental exam is.
2	Bravo for this very educational and tactful video
3	Bravo! Can this video be shown to couples?
4	Certain representations can be difficult and not essential for couples, (depending on the moment of viewing) although the video is very careful and thoughtful. Psychologist's opinion on the subject?
5	It's useful work! Thank you. The psychological care of couples should be improved.
6	This video is remarkable. As an old professional, I didn't learn anything from it, but I think it sums up all the aspects and could be useful to all my young colleagues.
7	What's more, it's pleasant to watch, even though it deals with a difficult subject.
8	Bravo for your work!
9	This video can be shown to couples to explain the value of the fetoplacental exam. However, I find some of the words a little harsh. In addition, I think this video is aimed more at gynecologists, to discuss FPE with their patients, even before they have met with geneticists, because otherwise FPE is already carried out most of the time.
10	PDC* coordinator
11	It's a bit long; the concept is interesting, but we'd need a shorter video that could be shown in consultation, because it's complicated to give patients the link in consultation.
12	As a midwife/ultrasound technician, I don't talk much about FPE with couples, because the antenatal diagnosis unit takes over. But I remain convinced of its value.
13	It seems from the questions that couples don't seem to be a target group for the video, yet I find it appropriate.
14	I think this video is good for people who don't know antenatal diagnosis at all, rather couples or students.
15	I think this video complements the explanations and the brochure. Viewed quietly at home by couples, it could use reformulation to help them make decisions.
16	I'm a fetopathologist, and I no longer meet the parents. A few years ago, couples were invited to PDC meetings after their case had been discussed, and I would introduce myself and explain autopsy to them as a surgical procedure, with the particularity that samples are taken from several organs, not just one. It's also important for them to know that it's a doctor who performs the autopsy.
17	I think the video is very well done, very informative for colleagues or students, and even for relatives of families, who might not have a precise view of the PDC and FPE. However, I feel that it should be modified to be presented to couples who are going through such an experience when they watch the video. There should be 2 versions of the video. I work in a PDC and I think this video reflects exactly what we do, it's really well done.
18	The video is interesting, but there's a lot of information, which could be broken down into several videos. It all depends on what you want from it and who it's for.
19	Thank you for this initiative, which won't necessarily change the discourse in consultation, but will help to provide information for teachers and the families concerned.
20	Very nice video that will be a great support for patients. Thank you
21	Very good for couples and for caregivers
22	Very good initiative, short video, simple but full of practical information that demystifies FPE for the uninitiated. It can be viewed after a consultation for couples whenever they wish and provides many answers to any questions that may arise. I recommend it ++.
23	Useful for some couples, because it's easy to watch, easy to understand and short.
24	Not useful for me
25	Video in synthesis drawing mode very good; softens the subject.
26	Very interesting explanatory video, thank you for your work!
27	Very well done and clear video
28	Very educational video

better "knowledge", "better understanding", and "training".

- 1/18 would like a document to give to couples.

In total, 83% of participants replied that they would be interested in more precise informations on FPE.

Answers After Viewing the Video

82.2% of participants watched the film, of whom 24.3% felt they had learned something, and 13 participants specified this learning in a commentary. Overall, what stands out most, is the sequence/chronology of events/follow-up, as well as the contribution of this examination to fetal phenotype characterization in percentage terms. The majority of healthcare professionals recommend this video to students (56.2%), colleagues (49.3%) and couples/patients (42.5%).

In response to the question "What additional information would you have liked to have seen in this video?", 4 participants would have liked to have seen Pre-implantation Diagnosis discussed.

Assessment of Learning through Video

After watching this video, among questions 8 to 13, almost 10% of healthcare professionals would change their answers.

77.8% of caregivers found the video useful (Figure 3). 71.2% thought the video would make it easier for them to discuss FPE with couples.

Discussion

Description of the Target Population

In accordance with the objective of the study, the target population were professionals working in the fetal medicine domain (100% of respondents), 82% of participants working in a university hospital center. This population distribution might be explained by the organization of pathological pregnancy follow up by prenatal diagnosis center which are located in university hospital. The population is fairly heterogeneous in terms of experience, with some healthcare professionals working in their center for just two months, others up to 40 years, with potentially extended experience.

Over half (56%) of the participants had courses or training in FPE, and only 34.8% had attended a FPE exam, whereas more than half (51.7%) often discuss FPE with patients. A minority (15.7%) never offer FPE. Among medical doctors (n=67) almost 9% never propose FPE while, among genetic counselors (n=16), 31% never talks FPE with patients. This may be due to a lack of knowledge about FPE, which makes it uncomfortable to present it to couples, or to the fact that these professionals are not directly involved in couples' care. In fact, none of the healthcare professionals considered FPE unnecessary and only 63.3% of caregivers said they felt comfortable discussing FPE with couples. Curiously, no correlation was found between professional potential experience and the comfort discussing FPE with couples. Even healthcare professionals working in the field for more than 10 years report discomfort with the subject. Around two-thirds (66.7%) of participants were unaware of the free online information leaflet on FPE, published by the SoFFoET and the AnDDI-Rares network; there is probably a need for greater promotion of the tools available to the healthcare teams concerned.

These responses show that all professionals are aware of the importance of the FPE, but almost half have not attended any specific training, 2/3 are not familiar with previous information leaflet, and 1/3 feel uncomfortable discussing FPE with couples.

Assessment of the Need to Develop the New Teaching Tool

In order to assess learners' need for a new pedagogical tool, we proposed an open-ended question: "What would enable you to better approach FPE?" Of the 18 responses received, the majority requested "clear", "precise" explanations, in order to gain better "knowledge" and "training" whether they previously had FPE formation or not. In addition, the overwhelming majority of participants (83%) answered they were interested in having more precise information on FPE, underlining the need for developing new, practical and easily available pedagogical tools.

Assessment of our Learners' Basic Knowledge

Only one participant felt that placental examination was not useful for the interpretation of fetal autopsy. 100% of participants knew that fetal autopsy is a medical examination that requires parental consent, which shows that the usefulness and practical requirements are clear to our learners. On the other hand, only 77.5% answered that they knew the difference between a medical autopsy and a forensic autopsy. It would be interesting to clarify this point, as 22.5% were unaware of it. Concerning the objectives of FPE, analyzed by a question left deliberately open, only one participant did not answer. The objective of "orienting diagnosis" was found in 88.6% of responses. On the other hand, although 100% of participants were attached to a fetal medicine center, the objective "to specify genetic counseling and/or the risk of recurrence for a future pregnancy, and to adapt and supervise the management of subsequent pregnancies +/- relatives" was observed in only 32.4% of responses, meaning 37 respondents of which 24 had previously training on FPE (38% of the trained respondents), while 13 did not (26% of untrained respondents). This underlines the need to continuously support our learners' basic knowledge. Interestingly, one participant noted that he "participated in the grieving process", which has indeed previously been described in the literature (3).

In the event of parental refusal, 71.1% of healthcare professionals offer couples alternatives, mainly an external examination (47.6%), DNA storage (36.5%) and/or fetal imaging (65.1%). In the absence of DNA storage, when a genetic origin of the fetal pathology is suspected, further investigations will not be possible, while a molecular diagnosis is a prerequisite to offer prenatal or pre-implantation diagnosis in future pregnancies; but only one third of participants propose a DNA storage, which suggests a lack of knowledge for some healthcare professionals. Knowing and being able to list all the objectives of the FPE is crucial for professionals dealing with couples, as these arguments should help convince couples of the benefits of FPE. Alternatives in case of autopsy refusal should systematically include a complete placental examination, external examination and fetal X-rays, as well as superficial fetal sampling (such as cutaneous biopsy) for fibroblasts culture for subsequent genetic analysis. In case of abnormal structural organs, minimally-invasive ultrasound-guided biopsy can also be discussed (e.g, cystic kidney) [6].

Questions to Assess the Teaching itself and the Teaching Tool

Eighty-two percent of participants watched the movie. After watching the video, among questions 8 to 13, 17.7% of caregivers

changed their answers, suggesting that almost 20% of them acquired additional knowledge. Among them, 7.9% concerned professionals had already attend FPE courses, while 9.8% were participants with no previous FPE training. However, 70% of them had not addressed the risk of recurrence and the management of future pregnancies and should have changed their answers. This may be due to poor self-assessment from learners, or a lack of clarity in the wording of our question. Moreover, as the video was viewed in an unsupervised manner, the quality of information received cannot be determined. The importance of FPE for future pregnancies was addressed in the open question, and 25% of respondents felt they had learned something from the video.

Learners' Evaluation of our teaching

To the question "What additional information would you have liked to have seen in this video?", 4 participants would have liked to see a discussion of preimplantation diagnosis, which echoes the management of future pregnancies. It might be important to clarify the different options for managing future pregnancies after a genetic diagnosis with a risk of recurrence. This could be the subject of a future video project. A large majority of healthcare professionals (77.8%) found the video useful, and 71.2% thought it would make it easier for them to discuss FPE with couples. The majority of caregivers recommended the video for students (56.2%), colleagues (49.3%) and couples/patients (42.5%), underlining the importance to extend the use of this video to the entire healthcare professional body involved in order to improve the management of the concerned patients. These responses and the free commentary (Table 4) suggest that this 7-minute video was useful for the professionals who viewed it and could enable them to feel more comfortable approaching the FPE with couples. In order to improve the care of parents confronted with pregnancy anomalies with an unfavorable fetal outcome, we made this video freely available online (YouTube). It is also available on the AnDDi-Rares and SoFFoet websites. It includes captions/subtitles and has been translated into English which makes it accessible to foreign couples and distributed internationally to the interested healthcare teams.

Conclusion

Despite solid knowledge and familiarity with FPE in fetal medicine units, FPE acceptance is still hampered by several obstacles. Better information and continuous support of the concerned healthcare professionals on the modalities, practical procedure, and benefits of FPE would enable couples to be better informed and would increase the acceptance rate for this exam. The evaluation of our movie suggests that this 7-minutes video was useful for the professionals concerned and could enable them to feel more comfortable approaching FPE with couples. It is a tool that might be used for trainees. Finally, the video is accessible and comprehensible directly for couples and their families.

Author Statements

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Bulleted Statements

What's already known about this topic?

Fetoplacental examination (FPE) is the gold standard for the management of fetuses following pregnancy failure.

However, there is a high parental refusal rate of FPE.

Half of healthcare professionals doesn't feel comfortable approaching the subject with parents, and only 8 % of them had received specific training concerning FPE procedure.

What does this study add?

We provided a new information support readily accessible for couples to explain the principles and interest of FPE, and help better understand the care pathway in the context of a FPE.

Authors Contribution

CD, MCA and TAB conceived, designed and wrote the analysis. LBS helped collected the data.

LM, MHSE, SB, FP, MJ, CQ, LL, CB, MG, JA, SCF helped to conceive the video and writing the paper. All authors reviewed the final manuscript.

Data Availability Statement

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

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