

**Saling E.** Neues Vorgehen zur Untersuchung des Kindes unter der Geburt: Einführung, Technik und Grundlagen. (New procedures for examining the fetus during labor: introduction, technique and basics.) *Arch. Gynäkol.* 197:108-22, 1962.  
[Städtischen Frauenklinik und Hebammenlehranstalt Berlin-Neukölln, Fed. Rep. Germany]

The paper describes the first fetal scalp sampling during labor. Basic findings concerning intrauterine blood gas and acid-base balance under the aspect of fetal circulation as well as the technique of sampling are presented. [The SCJ® includes over 145 cites to this paper, making it one of the two most-cited papers for this journal.]

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"Primarily, we were working on other scientific and clinical projects. At the end of the 1950s, we wanted to prove which of the methods then used was the most effective one for resuscitating asphyctic newborns in the delivery room of our department.

"The groundwork for these investigations was based on two achievements. One was the first successful catheterisation of the aorta of the human newborn through the umbilical arteries. Originally this was used for a new technique of blood exchange in newborns with erythroblastosis,<sup>1,2</sup> and for collecting blood samples for gas analysis from the newborn during resuscitation.<sup>3</sup> The second achievement was the development—in cooperation with the biochemist K. Damaschke—of the first method for quick measurement of O<sub>2</sub> saturation in blood samples.<sup>4</sup>

"In order to start the exchange transfusion in cases of severe erythroblastosis immediately after delivery, we took blood samples

from the presenting part of the fetus hours before birth for the necessary serologic and hematologic investigations.

"The available micromethod for O<sub>2</sub> analysis and the experience that blood samples can easily be withdrawn from the fetus gave us the now fairly simple idea of performing blood gas analyses too. This was the birth of fetal blood analysis (FBA). What then followed seems rather curious today. The first applications for research grants were turned down: one expert thought it ethically inadmissible to break the taboo of the unborn infant and to withdraw blood samples from the fetus. Another expert, whose statement was not based on any research findings, believed that the caput succedaneum (which does not by far occur during all labors), would basically eliminate any conclusions because blood drawn from this part of the circulation is not a suitable indicator of the central fetal circulation.

"Nevertheless, fetal blood analyses have proved their relevance in many places, both from the clinical side and from the point of view of research. Their reliability has been confirmed by numerous examiners both in animal experiments and in clinical use. We published an up-to-date review in English in 1981.<sup>5</sup>

"I think that the reason the original publication has been so frequently cited lies in the fact that FBA—combined with cardiocography—represents the most modern clinical supervision of the fetus during labor. FBA has also become a basic method for clinical research in the past 22 years. From the historical point of view, FBA is a method which enabled the first direct approach to the human fetus by blood analysis. In 1966, two English authors, Dobbs and Gairdner, described our activities—along with the development of amniocentesis by Bevis and fetal transfusion by Liley—as being 'the start of the science of foetal medicine.'<sup>6</sup>

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2. ...., Die Zwei-Katheter-Verfahren für den Blutaustausch beim Neugeborenen. *Deut. Med. Wochenschr.* 86:294-8, 1961.
3. ...., Über die Wirksamkeit von älteren und neuen Asphyxiebehandlungsmethoden. *Geburtsh. Frauenheilk.* 20:325-39, 1960.
4. Saling E & Damaschke K. Neue Mikroschnellmethode zur Messung des Blutsauerstoffs auf elektrochemischen Wege. *Klin. Wochenschr.* 39:305-6, 1961.
5. Saling E. Fetal scalp blood analysis. *J. Perinatal Med.* 9:165-77, 1981.
6. Dobbs R H & Gairdner D. Foetal medicine—who is to practise it? *Arch. Dis. Child.* 41:453, 1966.