

# Delivery circumstances in relation to adult septum deviation

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## SUMMARY

*The present study elucidates whether factors correlated to septum dislocation in newborns have quantitative significance for septum deviation demanding surgery in adults. The delivery circumstances of 95 patients operated upon for septum deviation were compared to those of 79 control subjects with straight septa. Patients and control subjects were born in the same area and at the same period of time. Eleven possible nose traumatizing factors were analyzed. No difference was found. There was, however, a male overrepresentation by 3:1 amongst the operated patients which may be explained by postnatal nose trauma.*

*It is concluded that delivery circumstances have only minor influence on the number of adults demanding septum surgery.*

## INTRODUCTION

The quantitative significance of congenital septal deformities as a cause of septum deviation in adults is still obscure.

Deformities of the nasal septal cartilage in the newborn may arise in utero or during delivery (Patrzek, 1890; Birke, 1934). Adult septum deviation may be caused by persistence of congenital deformities (see e.g. Gray, 1978) or be the result of a later event such as nasal trauma (see e.g. Holt, 1978). As pointed out by Pirsig (1979) and Stoksted (1979), there is a remarkable disagreement concerning the frequency of anterior septum deviation in newborns. On the other hand there is a general agreement concerning the benefit of early treatment usually according to Metzbaum (1936) and Klaff (1963). In short-term follow ups the results are good (Jeppesen et al., 1972), but long-term prospective studies are not available as far as is known to the authors.

Septum dislocation in the newborn has been correlated to maternal youth (Jazbi, 1977), primiparity (Steiner, 1959; Jeppesen et al., Soboczynski, 1970; Collo et al., 1978), prolonged second stage pains in multiparae and lack of birth moulding, respectively (Jeppesen et al., 1972), and pronounced birth moulding (Quante et al., 1976).

The aim of the present study is to evaluate whether these factors correlated to septum deformity in the newborn has any quantitative significance for septum deviation demanding surgery in the adult. The delivery circumstances of an adult

patient material operated upon for septum deviation are compared to those of a matched adult control group with straight septa.

#### MATERIALS AND METHODS

At the ENT department, Centrallasarettet, Uddevalla, Sweden 180 patients with septum deviation and complaints of nasal stenosis were operated upon in the five year period 1976-1980. All 180 patients were addressed. 23 did not respond and were excluded. It was possible to retrieve information from the delivery journals of the remaining 157 patients. Being an area of uniform delivery-care and -registration, the investigation was confined to Gothenburg and Bohus Community. Therefore 47 patients born outside this community were excluded. Furthermore, 15 patients, all males, with known postnatal nasal trauma were excluded. The final material thus consisted of 95 patients with surgery demanding septum deviation.

A control group was constituted from patients attending the ENT department for diseases not related to septum deviation. Only subjects found to have a straight nasal septum upon anterior rhinoscopy by trained ENT physicians were approved as control subjects. They were matched to the patients above with regard to sex and birth time. To obtain comparable delivery journals only individuals born in Gothenburg and Bohus Community were accepted. After these limitations the control group comprised 79 persons with straight septa. From the delivery journals of the patients and the control subjects the following information was reviewed:

Sex

Maternal age at delivery

Parity

Twin birth

Caesarean section

Obstetric procedures

Obstetrical complications

Fetal presentation

Duration of second stage pains

Fetal position

Birth weight

Degree of birth moulding was also searched for, but was found not to be recorded in the delivery journals.

From the ENT journals information on the direction of septum deviation was obtained. Descriptions of septal pathology were not sufficiently detailed to allow classification according to Pirsig and Knahl (1974).

Statistical methods: The binominal distribution was used in sex distribution analysis. The Chi square test for paired comparisons was used in Table 1. The Fisher

Table 1. Delivery circumstances.

	patients (n=95) %	control persons (n=79) %
primipara	36	42
twins	2	3
caesarean section	6	3
obstetric procedures	2	1
obstetrical complications	8	4

exact test was applied in Table 5. In all tests a p-value less than .05 was regarded as significant.

RESULTS

The mean age of the patients at operation was 26 years (range 17-38 years), 77% were men and 23% women. This differed significantly ( $p < .01$ ) from the expected approx. 50:50. As presupposed there was an equal distribution of birth time and sex in the patient group as compared to the control group (Figure 1).

There was no difference in maternal age at delivery comparing patients' mothers to control subjects' mothers (Figure 2). Primiparity, which has been reported to be correlated to septum dislocation in the newborn, was in the present study found with even lower frequency among patients with septum deviation than in the control group (Table 1). The difference was, however, not significant. There was no difference in frequency of twin births, caesarean section, other obstetrical procedures (forceps and vacuum extraction) or delivery complications in the two

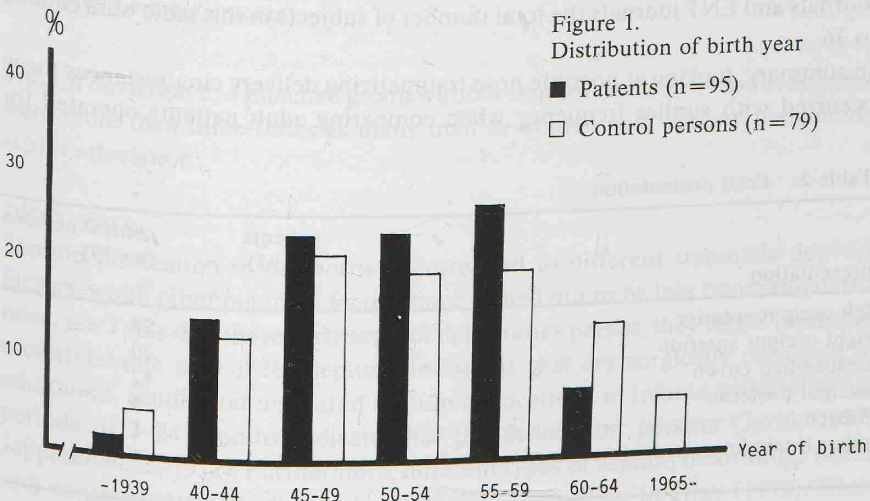
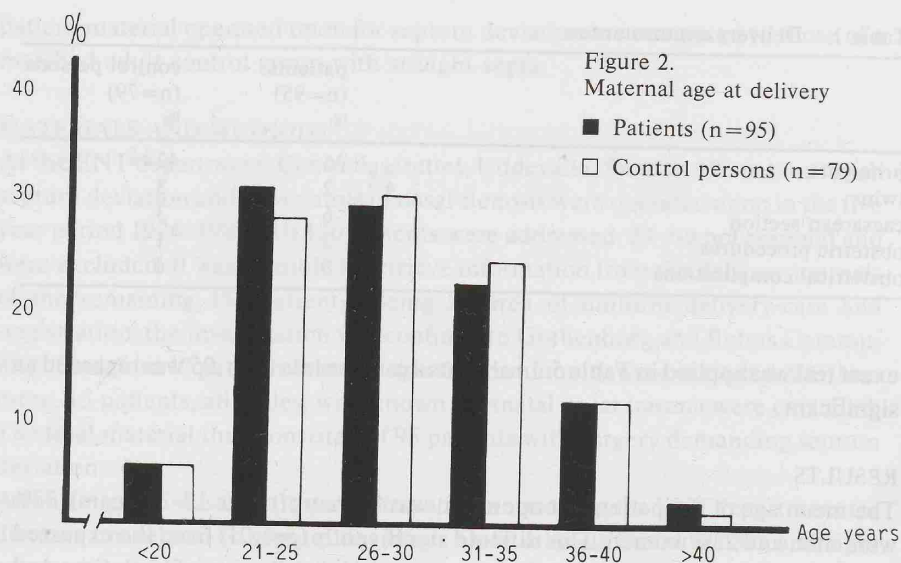


Figure 1.  
Distribution of birth year  
■ Patients (n=95)  
□ Control persons (n=79)



compared groups. The only two deliveries giving rise to use of forceps occurred in the patient group. There was no difference in birth presentation (Table 2). The duration of second stage pains did not differ when comparing the groups (Table 3).

Birth weight could be supposed to correlate to septum deviation, but there was no difference found when comparing the two groups in the present study (Table 4). No correlation was found between the direction of the patients' adult septum deviation and their fetal rotation (Table 5). Due to lack of information in delivery journals and ENT journals the total number of subjects in this table was reduced to 36.

In summary, looking at possible nose traumatizing delivery circumstances these occurred with similar frequency when comparing adult patients operated for

Table 2. Fetal presentation.

presentation	patients (n=95)	control persons (n=79)
	%	%
left occiput anterior	25	29
right occiput anterior	23	20
unspecified crown	40	42
occiput posterior	3	4
breach	1	1
other (including caesarean section)	6	4

Table 3. Duration of second stage pains.

Excluded from this table are those with no recording of the duration of second stage pains (30 patients and 19 control subjects) and those delivered by caeserean section (6 patients and 2 control subjects).

duration minutes	patients (n=57) %	control persons (n=52) %
< 15	19	23
15-120	40	49
> 120	3	1

Table 4. Birth weight.

birth weight grams	patients (n=95) %	control persons (n=79) %
< 2 500	1	4
2 500-4 000	78	76
> 4 000	21	20

Table 5. Correlation between direction of adult septum deviation and fetal position.

septum deviation	LOA	ROA	total
right	16	8	24
left	6	6	12
total	22	14	36

LOA = left occiput anterior  
ROA = right occiput anterior

septum deviation to a matched group without septum deviation. However, there were more than three times as many men as women with surgery demanding septum deviation.

## DISCUSSION

Septum dislocation in newborns is correlated to different traumatic delivery factors, while other potential factors have turned out to be less traumatic to the nose, see Table 6. If these early septum deformities persist, they might represent a considerable part of the septum deviations that are surgically corrected in adulthood. Studies on untreated septum dislocations in infants with follow up periods of 3-24 months indicate that the dislocation persists (Jazbi, 1977; Jeppesen et al., 1972). Furthermore, different types of septum deformities occur at a constant rate at birth and in adult skulls according to Gray (1978). Even

Table 6. Reports on the relation between delivery circumstances and congenital septum dislocation.

delivery factor	relation to septum deviation	
	yes	no
low maternal age	Jazbi	
primiparity	Collo et al. Jazbi	Gray
obstetrical procedures	Jeppesen et al. Collo et al. Soboczynski	Jazbi Jeppesen et al. Beran et al. Gray Jeppesen et al. Soboczynski
presentation		Beran et al. Gray Jeppesen et al. Soboczynski
prolonged labour		Beran et al. Jazbi Jeppesen et al.
prolonged second stage	Collo et al. Jeppesen et al.	Jazbi Jeppesen et al.
heavy infants		Beran et al. Gray Jazbi Jeppesen et al.
lack of birth moulding	Jeppesen et al.	
increased birth moulding	Quante et al.	

Quante's findings (1975) of a correlation between symptoms of nasal stenosis and degree of parietal bone moulding indicate an etiologic relation between septum deviation in adults and trauma at delivery. However, partly in opposition to this, Jeppesen et al. (1972) reported a highly significant inverse relationship between pronounced birth moulding and septum dislocation among newborns indicating that moulding might act as a protective factor.

No correlation between septum deviation in adults and delivery circumstances was found in the present study, thus bringing other possible etiologic factors to highlight. In our patient group operated for septum deviation 77% were men. This adult sex distribution could not reasonably be explained by male sex, as a single factor, increasing nasal septum dislocation rate at birth. Boys were even underrepresented in studies on septum dislocation at birth (Jeppesen et al., 1972; Beran and Lundin, 1982). Thus, the adult male overrepresentation must be explained by other factors occurring postnatally with higher frequency among males than females.

Supporting the theory that adult septum deviation is developed postnatally, Gray (1978) found 42% straight septa among newborns as opposed to only 21% in adult skulls.

Postnatal nose trauma would be one plausible explanation to the sex distribution found in the present study. This hypothesis is supported by the findings of nasal fractures being overrepresented in males and being common (Lundin et al., 1973; Holt, 1978). Septum dislocations are frequently connected to nose fractures, even though they may easily be neglected (Olsen, 1980).

Another possible explanation to adult septum deviation might be disproportional growth of the septum and its framework. It is doubtful if this as single factor explains the sex ratio 3:1 found in this study.

In summary we conclude that no delivery circumstances were found that would have major influence upon the number of adults who need surgical correction of septum deviation. This conclusion does not in any way dispute that reposition of nasal dislocation in a newborn may be of benefit to that particular individual.

#### ZUSAMMENFASSUNG

Diese Studie will folgende Frage untersuchen: Besteht ein kausaler Zusammenhang zwischen der Septumdislokation des Neugeborenen und der operationsbedürftigen Septumdeviation des Erwachsenen?

Deshalb wurde retrospektiv der Geburtsverlauf von 95 Patienten, die im Erwachsenenalter wegen Septumdeviation operiert wurden, mit dem von 79 Kontrollpersonen mit geradem Septum verglichen. Patienten und Kontrollfälle wurden im gleichen Zeitraum und Wohngebiet geboren. Elf mögliche nasentraumatisierende Faktoren wurden analysiert. Dabei ergaben sich keine Unterschiede in beiden Gruppen. Unter den Operierten war das männliche Geschlecht mit 3:1 deutlich überrepräsentiert, was auf mögliche postnatale Traumatisation hindeuten könnte. Aus diesen Daten scheint die Annahme berechtigt, daß der Geburtsverlauf keinen numerisch bedeutsamen Kausalfaktor für operationsbedürftige Septumdeviationen beim Erwachsenen darstellt.

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