Incidence of Klumpke's birth palsy: Comparison between two decades

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In a previous paper, the incidence of Klumpke's palsy as cited in the English literature over the last decade (1984 to 1994) was found to be 0.6%. However, during the last decade, there have been consistent increases of cesarean section rates. Therefore, it was unknown if this modern obstetric practice affected the incidence of Klumpke's palsy. This review demonstrates that Klumpke's palsy was equally rare (0.7% of birth palsies) in the previous decade (1973 to 1983). It is also shown that 16 out of the 26 cases of Klumpke's palsy reported in the literature over the last two decades were reported from one centre. It is concluded that the incidence of this rare type of birth palsy has not changed with modern obstetric practice and that this palsy is related to vaginal breech deliveries with hyperabduction of the arms.

Key Words: *Birth injury, Klumpke's palsy, Obstetric brachial plexus palsy*

Incidence du syndrome de Déjérine-Klumpke : comparaison entre deux décennies

RÉSUMÉ : Dans un article précédent, l'incidence du syndrome de Déjérine-Klumpke citée dans la littérature de langue anglaise lors de la dernière décennie (1984-1994) était évaluée à 0,6 %. Or, au cours de la dernière décennie, le taux de césarienne a constamment augmenté et on ignore si cette pratique obstétricale moderne a affecté l'incidence du syndrome de Déjérine-Klumpke. Cette synthèse démontre que le syndrome de Déjérine-Klumpke était tout aussi rare (0,7 % des paralysies congénitales) au cours de la décennie précédente (1973-1983). On démontre également que 16 cas de syndrome de Déjérine-Klumpke sur 26 signalés dans la littérature au cours des deux dernières décennies provenaient d'un seul centre. Il en a été conclu que les pratiques obstétricales modernes n'ont pas modifié l'incidence de ce rare type de paralysie congénitale et que cette dernière est liée aux présentations de siège avec hyperabduction des bras.

Obstetric brachial plexus palsy is classified into upper, lower, total and intermediate palsies (1) according to the injured roots of the brachial plexus (Table 1).

In a previous paper (2), we reviewed the English literature over the last 11 years (1984 to 1994) and determined the incidence of Klumpke's birth palsy to be 0.6%.

In this paper, we determine the incidence of Klumpke's birth palsy as cited in the English literature between 1973 and 1983 and compare the results with our previous review (2).

TABLE 1: Classification of brachial plexus birth palsy

Type of palsy	Given names	Injured roots of the brachial plexus
Upper	Erb-Duchenne	C5,C6±C7
Lower	Klumpke	C8, T1
Total	Combined	C5,C6, C7, C8 ±T1
Intermediate	Jolly-Thomas	Predominant lesion in C7

MATERIALS AND METHODS

A MEDLINE search between 1973 and 1983 was performed and the articles were reviewed to determine the incidence of Klumpke's birth palsy among reported cases of obstetric paralysis. The percentage of vaginal breech deliveries in the reports with Klumpke's palsy was also determined. These results were then compared with our previous review (2) of Klumpke's palsy in the English literature between 1984 and 1994.

RESULTS

The MEDLINE search revealed that none of the review articles on birth palsy (3-8) investigated the actual incidence of Klumpke's palsy in the literature. We classified the papers reporting on brachial plexus birth palsy into two groups. In the first group, the authors (9-17) did not specify the type of palsy in their cases (Table 2). In the second group, the type of palsy was documented and these series (18-48) are shown in Table 3. Klumpke's palsy was seen in 0.7% of 912 cases of brachial plexus injury published between 1973 and 1983. This percentage is almost the same during the last decade (0.6%) as determined from our previous review (2).

TABLE 2: Clinical cases of obstetric brachial plexus palsy published between 1973 and 1983 where authors did not specify the type of palsy in their cases

Reference	Authors	Number of obstetric plexus palsy cases
9	Boyd et al	15
10	Green et al	25
11	Hoffer et al	45
12	Manske et al	11
13	Neuenschwander et al	20
14	Ohlsen	11
15	Parks and Ziel	3
16	Stefanova-Uzaunova et al	17
17	Svigos	6
	Total	153

TABLE 3: Series of obstetric brachial plexus palsy published between 1973 and 1983 in which the type of paralysis has been documented

Reference	Authors	Total number of birth palsy	Number of Klumpke's palsy cases
18	Aston	80	3
19	Bennet and Harrold	24	0
20	Eng et al	135	0
21	Gordon et al	58	0
22	Hoffer et al	39	0
23	Johnson et al	32	0
24	Perry et al	10	0
25	Rossi et al	34	3
26	Specht	11	0
27	Tan	57	0
28	Zancolli	368	0
29-48*	Others	64	0
	Total	912	6 (0.7%)

*References 29-48 are other articles that included less than 10 cases. Hardy (38) reported on 36 cases but he only documented the type of paralysis in the seven patients who did not recover spontaneously

The method of delivery in the reported cases of Klumpke's palsy was not specifically mentioned but the total percentage of vaginal breech deliveries in these series was higher than the Toronto series (2). Similar findings were observed in our previous review (Table 4) (2,18,25,49-51).

TABLE 4: Percentage of vaginal breech deliveries in the Toronto series compared with other reports with Klumpke's palsy published over the last two decades

	Authors	Total number of birth palsy cases	Percentage of vaginal breach deliveries in the series	Number of Klumpke's palsy cases
Toronto series	Clarke (2)	235	2.6%	0
Reports published between 1984 and 1994	Stojcevic	265	20.1%	16
	Polovina (49)			
	Al Rajeh et al (50)	57	8.8%	1
	Jahnke et al (51)	64	6.3%	3
Reports published between 1973 and 1983	Aston (18)	80	13.8%	3
	Rossi et al (25)	34	17.6%	3

DISCUSSION

Isolated C8/T1 lesions in birth injuries are related to vaginal breech deliveries with hyperabduction of the arms. Before our reviews, the incidence of Klumpke's birth palsy was unknown. Our first paper (2) determined the incidence of this type of palsy to be 0.6%, as cited in the English literature between 1984 and 1994. During the same decade, there had been an increase in cesarian section rates (52). Therefore, it was questioned

whether this obstetric practice affected the incidence of Klumpke's palsy. In the current study, we demonstrated that this palsy was equally rare (0.7%) in the previous decade. Prevention of Klumpke's palsy in vaginal breech delivery is best done by not allowing the arms to hyperabduct which puts the eighth cervical and first thoracic roots on a stretch (53). This fact has been known by obstetricians for several decades and since the cadaveric studies done by Sever in 1916 (53). An important finding of the current review was the high percentage of vaginal breech deliveries in the reports with Klumpke's palsy and this was true for the last two decades (Table 4). It was also interesting to note that 16 out of the 26 cases of Klumpke's palsy reported in the English literature over the last two decades were reported from one centre (Table 4).

In conclusion, Klumpke's palsy is extremely rare and its incidence has not changed with modern obstetric practice. This palsy appears to be related to vaginal breech deliveries with hyperabduction of the arms.

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