

Original Article**Timely versus Delayed Operation in Infants with Correctable Congenital Anomalies: A Survey in Isfahan, 2000-2001**

M. Nazem MD*, A. Baghaei MD**, B. Sabet MD***, H.A. Davari MD*

ABSTRACT

Background: Unless performing a timely and appropriate correction, congenital anomalies can conduce to irrecoverable complications. There are different reasons for delay in referring such patients to physician for surgery. By understanding these considerations, we can make an effective approach to reduce the severity of this problem in our community and this is the aim of our study.

Methods: In a cross sectional study, all 359 eligible cases (neonates and infants suffered from a correctable anomaly which were referred to our centers) and 110 physicians were included for a period of 15 months (2000-2001). Two main hospitals in our city were set as the data collection centers (Al-Zahra). Parents' views were extracted by interview. Physicians' knowledge about study subject was assessed by self administered MCQs.

Results: In this study 65 percent of all cases who were operated on had been taken to hospital with delay (male to female ratio was 4:1). Among the cases who received delayed surgical treatment, inguinal hernia was the most prevalent one (39 percent). Surgery in 32 percent of cases who had delay in their operation caused some degrees of complications. Physicians' misadvice (42 percent), economic problems (25 percent), and hospital terror (17 percent) were accounted as the most prevalent reasons for delayed referrals. Physicians' knowledge about the correctable congenital anomalies in infants was estimated very poor (3 score from 10).

Discussion: Delay to refer for operation in correctable congenital anomalies is an important dilemma in our community. Public education and also health professional education about this matter can play an admissible role improving the situation. Also, it is needed to make decisions for improving assurance supports in such cases.

Key words: Congenital anomalies, timely treatment, delayed surgery, attitude

JRMS 2006; 11(1): 53-56

Congenital anomalies are referred to abnormal lesions in one or more body organs at the time of birth which can be detected in any time of life ¹.

Most of such anomalies, if not all, require surgical correction, sometimes, during childhood. In some cases a prompt intervention or an emergency based surgery is quite necessary ².

It is most favorable to perform such surgical interventions at the ideal time for diminishing its complications and also to have a good recovering of anomaly ^{1, 3}. However, sometimes,

cases with such congenital problems may undergo a delayed operation which increases the risk of complications and even the rate of mortality in most cases ⁴. It is documented that the majority of complications are increased by any delay in operation for such cases ⁵.

In this study, we investigated the frequency of delaying before operation of correctable congenital anomalies in our region. Also, some suspected causes of this problem were assessed in the fields of physicians, parents' attitudes, and socioeconomic status.

*Assistant Professor, Department of Pediatric Surgeon, Isfahan University of Medical Sciences, Isfahan, Iran.

**General Physician, Research Manager of Isfahan Cardiovascular Research Center, Isfahan University of Medical Sciences, Isfahan, Iran.

***Resident of General Surgery, Shiraz University of Medical Sciences, Shiraz, Iran.

Correspondence to: Dr. Masoud Nazem, Pediatric Surgeon, Al-zahra Hospital, Isfahan University of Medical Sciences, Isfahan, Iran.

E-mail: m_nazem@med.mui.ac.ir

Subjects and Methods

In a cross sectional study, all infants admitted to the wards of pediatric surgery at two university hospitals (Kashani and AL-Zahra in Isfahan, Iran) were included. In a period of 15 months (2000-2001), 359 infants with correctable congenital anomalies were admitted to our centers. These two centers are the main centers of pediatric surgery in this region. Data from cases was collected with a questionnaire which was completed by a general physician. Infants' parents were interviewed and the time of operation was recorded in comparison to the proposed time with pediatric surgical references. In delayed cases, the reasons for delay were asked in fields of physician misadvises, parents' mistakes, or other economic problems. Times of proper operation are demonstrated in table 1.

We also assessed the knowledge of 110 general physicians who were working as family physicians in urban and rural area health centers. The knowledge was assessed with a validated self administered multi choice questionnaire (MCQ) with 10 questions. 86 percent of response rate was obtained in this field.

Data was finally analyzed using SPSS₁₁ with appropriate tests for correlations and also using of descriptive analysis.

Results

Out of the 359 cases studied, 234 (65.21%) had referred with delay. Only 125 (34.8%) of our cases had been operated on at the right time (table 2). Cases were aged from 1.7 to 180 months of old with the mean of 31.1 ± 35.4 months.

Among those who had delayed referral, inguinal hernia ranked the first with 93(39.8%)

cases. In contrast, imperforate anus showed to have the least incidence in that group (table 3).

As many as 76 cases suffered from complications due to operation delay. The remaining 158 cases showed no complications at all.

Economic problems were mentioned to be the cause of delay in 56 (24.9%) cases. In 41.85%, a physician was blamed for the delay.

For just one (0.5%) of the cases, parents had been hopeful for a spontaneous recovery.

Fear from surgery and hospital was responsible in 39(17.3%) cases. In 35 cases, we could not find a definite cause for the delayed referral.

As many as 57.1% of the cases were referred by a pediatrician, 18.8% by a surgeon, 13.8% by a general practitioner, and 2.2% by other health care providers (table 4).

In our survey on general physicians, 94 of questionnaires were filled by them (response rate = 86%). 48 physicians were working in rural and 46 ones in urban health centers. 37% of respondents were female. There was no significant difference between male and female about their knowledge about questioned subjects after age adjustment.

In this survey, the average score of physicians' knowledge about the right time for operation in correctable congenital anomalies was 2.73 ± 1.22 (out of 10). The mean score for GPs in rural sectors was 2.7 ± 1.3 , which showed significant difference with the mean score of GPs in cities (2.16 ± 1.16).

There was seen a correlation between age of physicians and their knowledge score ($r = -0.75$, $P < 0.05$). Also, the time of graduation was correlated to their knowledge ($r = -0.6$, $P < 0.05$).

Table 1. Proper time of operation for congenital anomalies.

Congenital Anomaly	Recommended Time for Operation	Congenital Anomaly	Recommended Time for Operation
Inguinal hernia	At Time of Diagnosis	Hirschprung's disease	As soon as possible after 6 th months of life
Undescended testis	9-12 th month of life	Cleft lip	Up to 12 th month of life
Hypospadias	Up to 2 nd year of life	UP Junction obstruction	As soon as possible in first weeks of life
GI Atresia	At time of diagnosis	Imperforate anus	At time of diagnosis

Adopted from: Keith Ashcroft, George Holcomb, J. Patrick Murphy. Pediatric Surgery, Elsevier Sciences, 4th Edition 2004

Table 2. Delay frequency in cases who needed operation.

Sex	Delayed	Timely	Total
Male	190 (81.2%)	100 (80%)	290
Female	44 (18.8%)	25 (20%)	69
Total	234	125	359

Table 3. Delayed and Timely Referral Cases.

Anomaly	Delayed referral	Timely referral
Inguinal hernia	93 (39.7)	41 (32.8)
Undescended testis	32 (13.6)	11 (8.8)
Hypospadias	25 (10.7)	9 (7.2)
Hirschprung's disease	21 (9)	7 (5.6)
Cleft lip	19 (8.2)	16 (12.8)
UP Junction obstruction	15 (6.4)	4 (3.2)
GI Atresia	8 (3.4)	17 (13.6)
Imperforate anus	5 (2.4)	5 (4)
Miscellaneous causes	16 (6.7)	15 (12)

Table 4. Mentioned causes of delay in referring the patients to hospital for operation.

Reason	Frequency (percent)
Economic problems	70 (29.9%)
Parents' fearing of surgical procedures on their children	85(36.3)
Parents' error in diseases	39(16.7)
Parents' fearing of anesthesia in their children	81(34.6)
Physicians' misadvises	101(37.3)

Discussion

About 65% of infants with congenital anomalies were operated on out of its right time which is responsible for increasing surgical complications among cases. The role of physicians and improving economic status are assessed very important to correct this problem.

Timely prevention, diagnosis, and treatment of diseases can readily decrease the rate of complications. The studies have shown that the early detection and repair of congenital anomalies in infancy and childhood is essential to decrease the potential operative morbidity rate ^{6, 7}. This needs an increase in parental awareness and prompt referring ⁶.

The most favorable diagnosis for congenital anomalies is when it happens shortly after birth. If a surgical intervention seems necessary, it is also most desired to be performed early in life. There are few instances for which a later correction is recommended. Unfortu-

nately, some cases of congenital anomalies remain undiagnosed or untreated for many years.

In our study, 34.8% of congenial anomalies were surgically treated at the right time. Multiple factors can influence the time of treatment. This is not suitable for our community in comparison to other sites ^{7, 8}.

In our field, physicians played the most significant role (41.8%) in making the problem. Imperfect physical examinations can usually give rise to delayed diagnoses and treatments.

These problems were also found to be reported in other references from other parts of the world ^{9, 10}. In this study, up to 32% of patients with esophageal atresia were diagnosed rather late since important signs like ciallorehia and cyanosis after the first oral feeding were totally neglected.

Another major cause of medical ignorance is probably neglecting of some rare diseases.

For instance, Hirschprung's disease has been misdiagnosed for many times as simple constipation, or Hirschprung's entero colitis has been treated as simple gastroenteritis.

Sometimes, in spite of a timely diagnosis, the timing for repair or correction has been wrongly suggested. For example, a case of inguinal hernia which was found in a child as early as the few first months of life were wrongly proposed to be operated on between ages 2 and 3 years. Even in many cases of undescended testis, the families were told that they could delay orchiopexy even till the age of school.

Fears of surgery and anesthesia can also cause a delayed referral for operation. As we know, some psychological shortcomings related to neonatal and pediatric anesthesia and surgery, which unfortunately are still continuing, have always given rise to such fears. Giving clear information and warnings on disadvantages of late referral, can help parents decide wisely and not to waste the golden time for an imaginary spontaneous recovery as they usually do for inguinal hernia and undescended testis. More apparent and blemish anomalies such as cleft palate, cleft lip, exom-

phalus, and gastrochesia urge parents to take their child more quickly to a surgeon.

Sometimes the infants' malformations are considered to be irreversible or is assumed as a scandal for the family and therefore may be hidden for a long time.

Economic issues were proved as the second most important cause of treatment delay. About 55% of the patients in our study group were covered by a medical insurances and this had sensibly reduced the economic burden placed on families. However, in many instances, families refused the operation just for economic problems. It is also suggested that maybe there are some infants with undiagnosed and therefore untreated malformations that may possibly die and never be included in a study like this. Lack of enough pediatric surgeons in many parts of the country can automatically delay the performance of the operation, which should preferably be carried out during the first few months of life.

In our study, the knowledge of physicians was unfavorable at all. It seems necessary to include this subject in CME courses for physicians. They must be more aware about the diagnosis and follow-up of congenital anomalies.

References

1. Keith Ashcroft, George Holcomb, J. Patrick Murphy. *Pediatric Surgery. Elsevier Sciences. 4th Edition 2004*
2. Rantomalala HY, Andriamanarivo ML, Rasolonjatovo TY. *Children's strangulated inguinal hernia. Arch Pediatr. 2005 12(3): 361-5.*
3. Lim KT, Casey RG, Lennon F, Gillen P. *Cryptorchidism: a general surgical perspective. Ir J Med Sci. 2003 172(3): 139-40.*
4. Amon D. *Diagnosis of congenital anomalies. Pediat Surgery Int. 1990: 412-415.*
5. Kogan S. *Cryptorchidism. In: Kelalis PP, King LR, Belman AB. Clinical pediatric urology. 3rd Ed. Saunders Co. 1992: 1078.*
6. Omar AR, Omar AM, Shaheen AN, Geryani MH. *Treatment strategy of inguinal hernia in infants and children in Eastern Libya. Saudi Med J. 2004 25(6): 753-5*
7. Stephans BJ, Rice WT, Koucky CJ, Gruenberg JC. *Optimal timing of elective indirect inguinal hernia repair in healthy children: Clinical consideration for improved outcome. World J Surg. 1992 16(5): 952-6.*
8. London NJ, Joseph HT, Johnstone JM. *Orchiopexy: the effect of changing patterns of referral and treatment on outcome. Br J Surg 74(7): 636-8.*
9. Magani J. *Imperforated anus presenting in adulthood. Postgraduate Doctor 1983: 253-254.*
10. Steckler RF, Zaontz MR, Skoog SJ, Rushton HG. *Cryptorchidism, pediatricians, and family practitioners: patterns of practice and referral. J Pediatr. 1995 127(6): 948-51.*