Tikrit Journal for Dental Sciences 4 (2016) 81-89

Analysis Study for Cleft Lip And / Or Palate Patients and Steps of Management in Al-Wasity Hospital

Natheer AJ. (1)
Hassan Hameed. (2)

Key words
Cleft lip, cleft paiate, iragi people

Abstract

Cleft is defined as defect in the fusion of facial tissues alone or with palatal processes during embryonic life causes an opening in face or roof of mouth in baby which considers as most common anomalies visit our hospital. To analyses most important problems which may consider as one of the cause of cleft lip and palate patients with steps in management of this important anomaly. The sample involves 500 patient distributed between cleft lips only, cleft palate group and cleft lip and palate. The parent of patient takes important field in our study since they are who answer the questions, the study take five years from 2010 to 2015, patients came to our hospital with age extend from few hour to 28 years old .the problem is very important and this first study in our hospital . Of this study analyzed by chi-square test, the results were founded cleft lip group was found to be (15.6%), cleft palate group (33.6%) and cleft lip and palate group were (50.8%). We take the order of patient in family found 28% of sample first in order (highest percentage).Most patient fathers above 30 years (65%), 8.6%of them with systemic disease (40%) were smokers. Most age group of mother were younger between 16-30 years old (65.4%), previous history of cleft found in 33% of sample and (45.6 %) of mother had a history of psychological problem. Management of patient include long process therapy as early age of patient when reach hospital to age above 20 years old which include plastic surgery , orthodontic treatment and maxillofacial surgery.

Introduction:

Cleft lip and cleft palate are among the most common birth defects. They are most commonly occur as isolated birth defects but are also associated with many inherited genetic conditions or syndromes[1]. From the seventeenth century the scientific study of malformation began [3]. Cleft lip and cleft palate occur when oral tissues of embryo don't fuse properly.

(1) Specialist of maxillofacial surgery in al- Wasity hospital, Baghdad.
(2) Specialist of maxillofacial surgery in al- Wasity hospital, Baghdad.

Normally, the tissues that make up the lip and palate fuse together in the second and third months of pregnancy[5]. But in babies with cleft lip and cleft palate, the fusion never takes place or occurs only part way, leaving an opening[2]

McCarthy [3]had introduced the treatment of protruding premaxilla using a head bandage to achieve extra-oral compression of premaxilla segment, thereby reducing it to a more favorable position for lip closure. Jones et al. (1993) define cleft lip with or without cleft palate as a highly visible congenital deformity of the mouth and face and with its relatively common

condition[4]. It may be a part of a syndrome or may occur in isolation[6]. Lisa and Wilkie define cleft lip, with or without cleft palate involvement, as a common congenital deformity. Although not fatal, unless associated with other serious congenital diseases, it is an important world widely public health problem because it carries a great deal of social, functional and psychological morbidity.[7] Consequently, this subject is considered as one of the most important subjects and fortunately, many books have been written on this subject covering areas like embryology, orthodontics, plastic and reconstructive surgery, medical community, maxillofacial surgery, psychology and speech therapy. The patient with this type of anomaly needs management which might last for more than 17 years in some cases[8,9]. Cleft lip and cleft palate may appear as only small notch of the lip or may extend from the lip through the upper alveolar arch and palate into floor of the nose or as only defect in the roof of mouth doesn't affect the appearance of the face[10].

Etiology: For the purpose of simplicity the etiology can be divided into: 1.Genitic 2.Enivironmental, and 3. Multifactorial[13,14].

A- Genetic:- A large number of syndromes that include cleft lip and/or cleft palate described as one feature. [15]

B- Environmental :- McCarthy [3]mention that chemical and other agents, which are capable of producing embryological defects if given at the critical time, are called teratogenes .Environmental factors include:

Drugs: Sedative and tranquilizer, like [16] thalidomide as one of the drugs that is positively implicated as teratogene .Anti convulsant drug, like [17]. Phenytoin administration causes facial clefts by inducing folate deficiency, in addition to its action or influence on the gene FI-2 region of chromosome 17 [16].

Analgesia, like [18]. Aspirin as one of the teratogenes affecting dentofacial development and could produce cleft lip and palate. Antibiotics [16]. Antidepressant [16][19]. Nutritional deficienc [20]. confirm that nutritional deficiency especially, folic acid and riboflavin, are important factors that may cause cleft palate[21] .Steroid therapy ،Dexamethasone is capable of producing cleft palate in rats.

Pathological status of the mother: Diabetes [16] insulin consider as one of the teratogenic drugs under some conditions.Hyper and hypotension. And Rubella (German measles). In addition to that, we can added irradiation, experimental .studies have found that a moderato severe foetal growth retardation can be caused by even small doses of radiation [22] Psychological and emotional stress it also take a rule in this anomaly [23].

C- Multifactorial causes: A multifactorial disorder is one which is determined by a combination of genetic and environmental factors. Rac. In the United States, cleft lip and palate are reportedly most common in Native Americans and least common in African-Americans.

Problems association with cleft lip and palate:

1- Problem of feeding.
2- Social and Psychological problems.
3- Hearing problems.
4- Speech problems.
5- Facial deformities.
6- Dental and occlusal problems.
7- Respiratory problem.
8- Association anomalies which involve many organs include craniofacial, CNS, ocular, heart, musculoskeletal, genitalia, abdominal, ears, thoracic, endocrine and skin [24].

Challenges of coping with a medical condition: Children with clefts may face social, emotional and behavioral problems due to differences in appearance and the stress of intensive medical care [25][26]

Management: There can be few conditions that require the expertise of so many specialists from birth to maturity, and cleft lip and palate is one of these conditions . An ideal team should comprise the following members: Orthodontists, plastic and maxillofacial surgeons, ENT specialists, speech therapists, pediatricians and dental practitioners [27]

Surgical management: includes lip repair ؛ The exact timing and surgical procedure

depends on the practice of the surgeon and on the health of the infant, the objectives of lip repair is to produce a lip of adequate length that is not tight and is functionally satisfactory ،[3]repair of the lip is generally deferred until an infant weights approximately 12 to 14 lbs. in order to have more tissue with which to work . There is an intrauterine repair of cleft lip, the absence of scar was verified when the intrauterine repair of simulated clefts in mice, rabbits and one rhesus monkey[28]. Lip and nasal revision may be performed before school entry to improve function or appearance; alveolar bone grafting is also performed prior to the canine eruption . Rhinoplasty and nasal septal surgery are performed after the completion of facial growth at approximately 14-17 years . Orthognathic surgery is performed if the maxilla is under developed when orthodontic treatment to achieve proper occlusion has been unsuccessful [27،4].

Materials and method:

The sample of this study includes patients whom came to Al-wasity hospital as they are refer from different area and because of this hospital consider as tertiary center so that the patient came from different areas and hospitals which include south, east, north and west area of Baghdad and because position of this hospital which neighbor to gynecologist hospital we receive new baby whom age about few hours. The sample consist of 500 patients (269 male and 231female) with different type of cleft lip and palate, the age range from few hours to 28 years old the study extend from 2010 to 2015, especially made questionnaire was filled together with the patient's family (the father or mother or both of them, in addition to clinical examination for recording the type of cleft .The material :Includes first: questionnaire form, which a detail forms of epidemiological parameter (variables) was designed which contained various information about the patient and his family and examination tools which include dental mirror, dental probes and wooden sticks.While the method include clinical examination (extra oral examination and intraoral examination), then recording the information, fill case sheet involve most important questions. Classification of anomalies into cleft lip, complete cleft palate, soft palate cleft and cleft lip and palate Management of cleft lip or and palate patients : As a protocol in our hospital the patient first go to outpatient clinic and after examining him/ her, the physician refers the patient to plastic surgery clinic، at this time the first problem facing the child and should be resolved is feeding so that construction of feeding plat (fig6) is consider importance priority and this procedure is done in orthodontic department in our hospital and usually when the age of the child reaches 3 months or the Wight of child acceptable from general anesthesia view (the weight above 12 ibn) Repairing of the cleft lip will be done by plastic or maxillofacial surgeon(fig4,5) followed by repairing of the cleft palate at age of 18 months, then orthodontist follow up the case so examine the condition of teeth, the position of premaxilla and necessary for expansion of maxilla by orthodontic appliances until patient reach the age of canine eruption from(9-12) years old were undergo bone graft to close the oro-nasal fistula if present by maxillofacial surgeon and retained back to follow by orthodontist for more deal with teeth and arch until the puppetry time at this age scar revision ,correction ala of nose, septoplasty ,and orthognathic surgery for maxilla done where its important. Larynx condition and speech therapy manage in Al-kindy hospital in ENT department.

Results:

1- Cleft lip: found in 15.6 %among patient unilateral was more common involve about 96.15%, bilateral was 3.85, unilateral found more common in the left than in the right (68%left and 32% right).

2- Cleft palate: 33.6% was involved by cleft palate divided into cleft involve soft palate alone(6.55%) and complete cleft soft and hard palate (93.45%).

3- Complete cleft lip and palate; this formed the majority of sample among other group about (50.8%) and we divided this group to:

A-Unilateral cleft lip and palate and this formed (63.38%) left side (60.86%) and right side (39.13%).
B-Bilateral cleft lip and palate (36.61%). Sex percentage, show in table no.1

And detailed distribution of sex with types of cleft as shown in the table no.2
About 65% of fathers age above 30 years old this indicates that high percentage of cleft patient born from older fathers, 8.6% of them with systemic diseases ,most of them worked in free enterprise (81%) while the rest civilian and non-civilian work, systemic disease includes hypertension, diabetes, anaemia , hormonal disorder….etc.,40.6 %were smook,2 %alcohol drinkers.if take mother in concentration, the majority of mother was between 20 to 30 years old formed about (65.4%) and we found 90% of mothers are house wives with 70% of them with low level of education 80.6% of mothers had normal deliveries, while 19.4 % had caesarean operation، previous abortion recorded in (19.8) of mothers with 20 %had multi abortion .

The relativity :The consanguinity between parents were found in 71% while those how were not relatives formed (29%) when take family history found about 10% of family had previous history father, mother, sister or brother, and there was a twin male and female both of them had cleft lip and palate at same site. All the patients who had previous history have complete cleft lip and palate either unilateral or bilateral. 39.2% of mothers had diseases during the first trimester of pregnancy commonly with flu followed by urinary tract infection, anemia respiratory disease, and hypertension. 40% of mothers take drug during first trimester of pregnancy like antibiotics, vitamins, insulin, anti-inflammatory drugs, steroid, contraceptive pills…etc. 46.6% of mother had a history of psychological upset, (3%) of mother had history of physical trauma. And association congenital anomalies with cleft lip and palate show in table no.3.

Discussion:

In this study we found the cleft lip less common than other type (15.6%) and this agree with many other study Kinaan [29] (15%), Al-Zubaidee and Hammash [30] (16.667%), Dawood [31] (15%). However, a great variation was found among the other studies Natsume and Kawai [3] (41.3%), Manhal [32] (10%), Al-Zubaidee et al. (1998) (50%). Unilateral clefts were more common than bilateral cleft which was supported by other studies Manhal[32], Al-Zubaidee and Hammash[30]. This study showed also predominance of left sided cleft which represented to the right-sided cleft of all types of cleft lip cases. This might be due to the turning of the head to the right as the heart develops which places the left side of the face inferiorly. In case of cleft palate;33.6% which was very close to other studies Sesgin and Stark (33%), Conway and Wagner (32%), Padilla and Gonzalez (1986) (33.1%), Dawood (1997) (33%), Al-Zubaidee et al. (2000) (38%). Cleft of soft palate was less common than that of the hard palate. While Borcbakan (1969) reported higher incidence of cleft of the soft palate than that of the hard palate. Cleft lip and palate. This group formed the main bulk of all types of cleft which was also reported by other studies; Manhal [32] (67%), Dawood [31] (52.14%), Al-Zubaidee [30] (45%). Unilateral cleft lip and palate group in this study was more common than bilateral cleft lip and palate which is similar to the results obtained by Dawood[31], and it is opposite to the results obtained by Manhal [32] Kinaan [29]No median cleft lip and palate was founded in this study which was not found also in many studies as in Manhal[32] and it is considered as rare type of facial cleft. Dawood [31] had found a median type of cleft in a percentage of (1.07%). In case of sex male affected more than female (1.16:1) Manhal [32] (1.27:1). The differences in the distribution of clefts between the sexes are unknown but it was suggested that the possibility of a difference in the morphogenesis of the face of male and female could be the reason. If we take the fathers' age in consideration we found that the incidence of cleft was greater in the older age group, but Jensen et al (1988) found that there were slightly more cleft births when the fathers are younger than 24 years of age in reverse to age of mother about (65.4%)

found cleft patient porn to younger mothers from (14 -30 years old) this agree withManhal[32] Slavkin (1992) some other study found that positive relationship between the occurrence of oral clefts and advanced maternal age (Fraser and Calnan 1961).In this study we found that 71%of parents are related and this agree with Dawood[31]Family history found in 10%was in agreement with previous studies of Pietrzyk et al (1985) but AL-Zubaidee et al 2000 reported family history in 6.8%.39.2%of mothers had diseases during first trimester of pregnancy, Dawood [31] reports that a percentage of (36,3)of mothers who had a disease. Other studies found that specific disease cause cleft lip and palate like epilepsy Niebly[17] diabetes (Nada, 1975) and Rubella (Seaver and Hoye 1992). 46.6%of mothers psychologically upset and this value between (65%) reported by Manhal [32]. All cleft lip and palate patient wither unilateral or bilateral they need feeding plate done by orthodontist 50.8%.

Conclusions:

1- Cleft lip group patient less than cleft palate bilateral cleft lip only found in (3.85%) among those patient.
2- Soft palate affected less than hard palate (6.55), all children with soft palate cleft have no problem with feeding (no need for feeding plate).
3- Cleft lip and palate most common type affected patient(50.8)and this type is worse type of cleft and need more care for the child (feeding ,aspiration of milk and the condition of premaxilla)
4- In both cleft lip alone and cleft lip and palate left side affected more than right side.
5- Male affected more than female.
6- The highest percentage of patients were the first in the order of birth.
7- Younger woman's child affected more than older one while older father's child affected more than younger .
8- 70% of mother had low education level.
9- Drug intake during the first trimester has significant role in this type of malformation.
10- Consanguinity between the parents was positive in (71%) of the sample.
11- Management of cleft and or palate patient is team work and long procedure extends beyond puberty age.

Male	53.8%
Female	64.2%

Table (1)

Type of cleft lip and palate	Male	Female	ratio
Bilateral cleft lip	1	2	0.5:1
Unilateral cleft lip	50	25	2:1
Left unilateral cleft lip	30	20	1.5:1
Right unilateral cleft lip	18	5	3.6:1
Complete cleft palate	80	78	1.02:1
Cleft soft palate	8	2	4:1
Cleft lip and palate	130	124	1.04:1
Bilateral cleft lip and palate	50	43	1.16:1

Left unilateral cleft lip and palate	50	48	1.04:1
Right unilateral cleft lip and palate	30	33	0.9:1

Table (2)

System affected	percentage
Craniofacial	4.8
CNS	2.6
Ocular	1.2
Cardiac	2.6
Urogenital	3.2
Musculoskeletal system	12
Abdominal	9.6

Table (3)

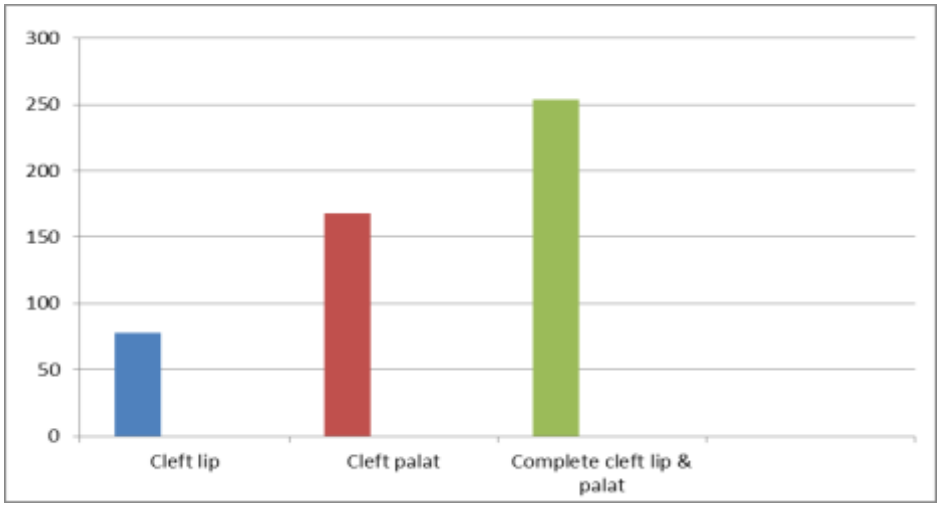

Fig (1): Percentage of cleft lip, palate and cleft lip and palate

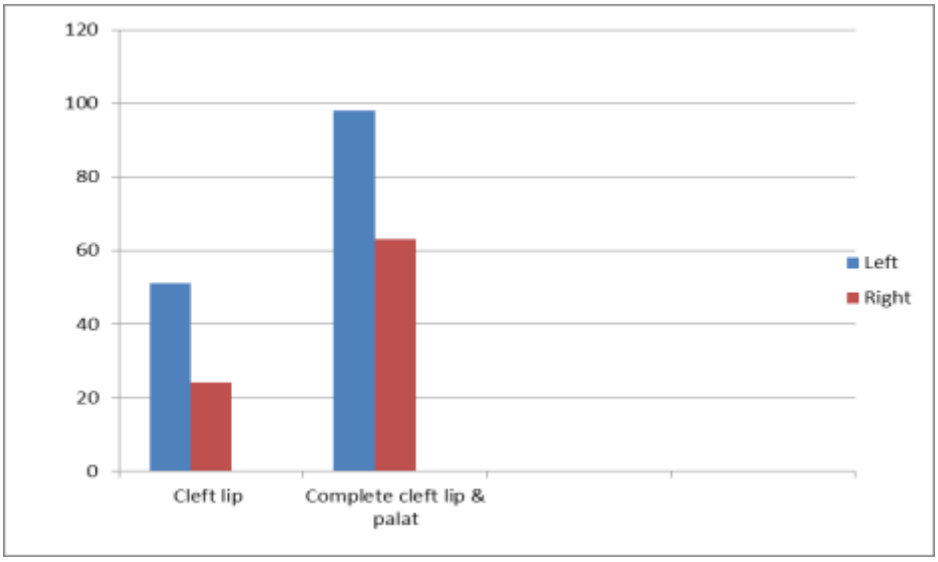

Fig (2): Distribution of lip and unilateral cleft lip and palate (left and right)

Fig (3): Sever bilateral cleft lip and palate.

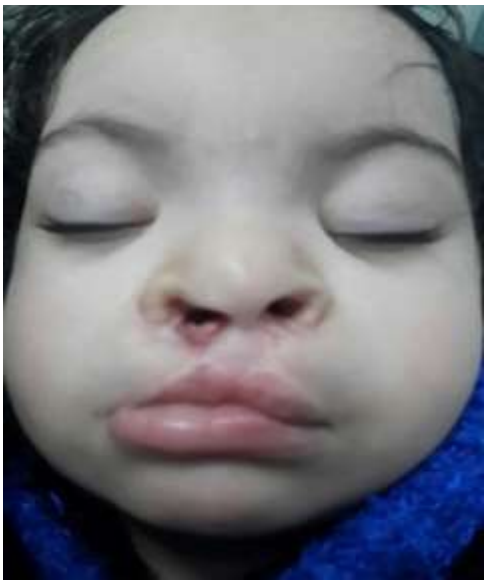

Fig (4): Lip repair

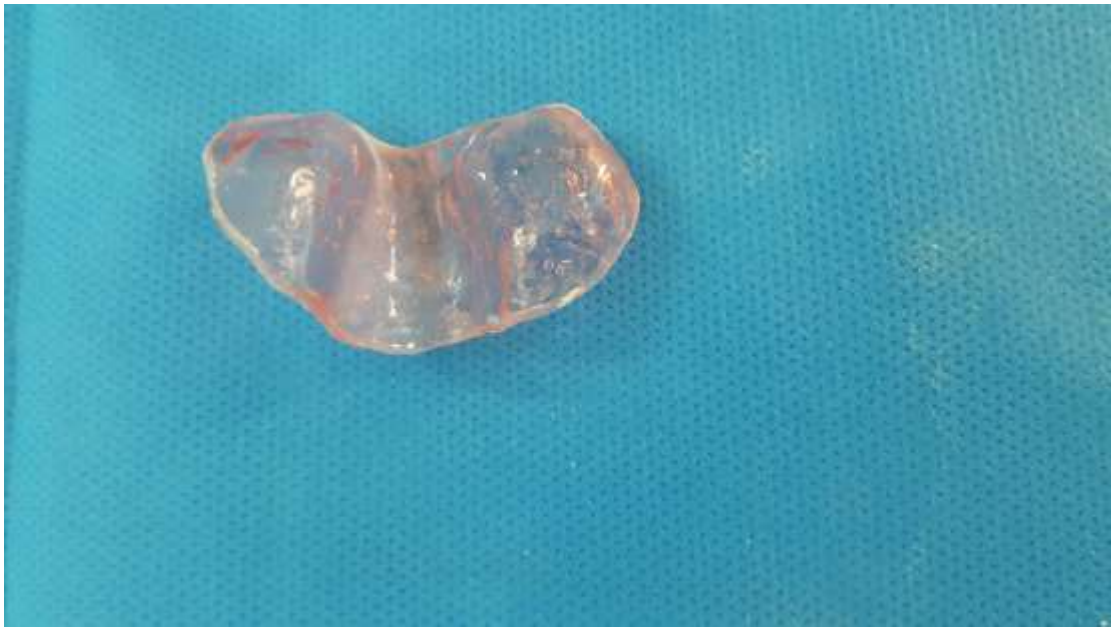

Fig (5): Feeding plate.

References:

1. Louise Wilkins-Haug PHD. Etiology, prenatal diagnosis, obstetrical management and recurrence of orofacial clefts. Up to date/home. Accessed May 12, 2015.
2. José Alberto PHD, Gisele da Silva MD: Current data on the characterization of oral clefts in Brazil. Braz. oral res. vol.18 no.2 São Paulo Apr. /June 2004.
3. McCarthy JG, James W, and Littler J. :(Plastic surgery cleft lip and palate and craniofacial anomalies. (1990) Vol. (4), W.B .Saunders Company.
4. Natsume N, Sugimoto S ،Kawi I: Influence of Maternal anaemia during early pregnancy on The development of cleft palate . Br G Maxillofac Surg (1990) 37(4): 330-331.
5. Crockett DJ, et al. Cleft lip and palate. Facial Plastic Surgery Clinics of North America. 2014; 22:573.
6. Cleft lip and cleft palate surgery. American Society of Plastic Surgeons. http://www.plasticsurgery.Org/Reconstructive-procedures/cleft-lip-and-palate.html#content. Accessed May 12, 2015 .
7. Lisa LY ،Wilkie WK.: Alternative donar sites for alveolar bone grafting in adults with cleft lip and palate. Angle Orthod. (1998) .16-9 :1
8. Campbell A ،et al .cleft lip and palate surgery: An update of clinical outcomes for primary repair. Oral and Maxillofacial Surgery Clinics of North America. 2010:22:43
9. Cleft lip and cleft palate. Centers for Disease Control and Prevention.http://www.cdc.gov/ncbddd /birth defects/cleftlip.html. Accessed May 12, 2015.
10. Cleft lip and cleft palate. American Speech-Language-Hearing Association.http//:www.asha.org/public /speech/disorders/cleftlip./Accessed May 12 .2015
11. Apostole PV: Incidence of cleft lip, cleft palate and cleft lip and palate among races. A review .Cleft palate J (1987)225-216:(3)
12. Millett D, Welbury R. (2000): Orthodontics and Pediatric dentistry Colour guide .Toronto, Churchill Livingstone.
13. Cofer SA (expert opinion). Mayo Clinic, Rochester, Minn. June 8, 2015
14. Cook AJ. Decision Support System. Mayo Clinic, Rochester, Minn. Jan. 23, 2015.
15. Turvey TA, Vig KWL, FonsecaRJ. Facial clefts and Craniosynostosis, principles and management, W.B.Saunders Company (1996).

16. Wilson JG :(1993) .Present status of drugs as teratogen in man .Teratology; 16-7:3
17. Nimbly R, Blake DA,Rocco LE, et al..:Maternal, metabolic ,endocrine, environmental influences in the etiology of cleft lip with or without cleft palate .cleft palate J(1985):22:20-28.
18. Proffit WR- Fields HW et al … (1993 (:Contemporary orthodontics, 2nd Ed.Mosby yearbook.
19. Laborde JB, Hansen DK,et al ..Prenatal dexamethasone exposure in rats-effect of dose, age at exposure and drug-induced hypoplasia on malformations and fetal organ weight .fundam . Appl Toxically (1992)9 (4)1;554-545
20. Seaver H, Hoyme M: Teratology in pediatric practice; Medical Genetic; (1992) 39(1):26-31
21. Bianchi E,Calzelar E,et al..:Environment and genetics in the etiology of cleft lip and oalate with reference to the role of folic acid .Epidemiol Preven J;(2000)24(1):121-127.
22. Maneksha M. (1986): Etiology in colour atlas of cleft lip surgery .Wolfe Year Book.
23. Abdul-Rahim KK: cleft lip and palate genetic aspect .Iraqi dental J;(1987)206-219.
24. Your baby's first year. Cleft Palate Foundation. http://www.cleftline.org/parents-individuals/publications/booklets/. Accessed May 13, 2015.
25. Blijdrop P Muler H: The influence of the age at which the palate is closed on speech in the adult cleft patient .J Maxillofac Sueg;(1984)12:237-246.
26. Hoecker JL (expert opinion .(Mayo Clinic, Rochester, Minn. May 20, 2015
27. Houston WJB, Stephens CD ،Tully WJ. (1992): A textbook of orthodontics. 2nd Ed. Bristol Wright
28. Hallock GG:In-utero cleft lip repair in mice .Plast.Reconst .Surg;(1985)75:785-791.
29. Kinaan BK. (1990); Baghdad University .Iraqi-unpublished data .As cited by) Manhal.(1990 ،
30. Al-Zubaidee AF،Hammash MH(1998):Cleft lip and palate in primary school's student of sadam city –Baghdad.JFac Med Baghdad;40(30):46-52
31. Dawood TT. (1997): Genetic of cleft lip and palate and associated congenital anomalies .A thesis Submitted to Iraqi Commission for Medical Specialization .
32. Manhal SH. (1990 :(A Study of cleft lip and / or palate in Iraqi infants. A thesis submitted to the college of dentistry Baghdad University in partial fulfillment of the degree of Master of Science of orthodontics.