Institution Name: Directorate General of Khoula Hospital

Document Title: Protocols for Management of Cleft lip and Palate deformities.

Approval Process

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Contents Table:

Acronyms:

CL	Cleft Lip
CP	Cleft Palate
CLA	Cleft Lip and Alveolus
CLP	Cleft Lip and Palate
CBC	Complete Blood Count
ABG	Alveolar Bone Grafting
SCBU	Special Care Baby Unit
NAM	Naso Alveolar Moulding
PAC	Pre Anaesthetic Check Up
URI	Upper Respiratory Infection
ENT	Ear , Nose and Throat
HD	High Dependency
DMB	Departmental Management Board

Protocols for the Management of Cleft lip and Palate Deformities

1. Introduction

The cleft lip and palate are the most common congenital craniofacial anomalies. Successful treatment requires technical skill ,knowledge of the abnormal anatomy, and appreciation of three-dimensional facial aesthetics. Cleft care requires a collaborative multidisciplinary team approach. It is vital to manage all the cleft lip /palate cases as per standard protocols. Treatment protocols are designed to provide best care for patients with Cleft lip/Palate and should not be ridged. Management protocols should be flexible, evidence based , and may be modified if proved wrong or inappropriate.

2. Scope

This protocol is applied to all plastic surgery doctors and staff nurses who are dealing with children with cleft lip and palate deformities.

3. Purpose

The main aims of this protocol are to ensure patient safety , a uniform approach by the treating doctors and staff nurses to minimize confusion, to facilitate better follow up and monitoring of the patient's progress.

4. Definitions

The cleft lip is defines as the defect of the upper lip either on one side or both sides since birth and it can be either isolated or associated with the defect of the alveolus or the palate .The cleft palate is the defect of the palate and it can be either isolated or associated with the defect of the lip .

5. Policy

It is the protocol of the Plastic Surgery Department at Directorate General of Khoula Hospital to ensure safe and effective management of children with Cleft Lip/Palate Deformities.

5.1 Pre-Birth

5.1.1 Diagnosis and referral to the Cleft lip and palate /Plastic surgery Outpatient clinics at Khoula Hospital.

5.1.2. Counseling of parents (Meeting to be arranged with Craniofacial /Plastic surgery team, Social worker and parents)

5.2 At Birth

5.2.1. Referral by the Neonotologist to the Craniofacial /Plastic Surgery team, Khoula Hospital.

5.2.2. Counseling of the parents by Plastic Surgery registrar, Cleft nurse, Speech pathologist and Social worker in SCBU, Khoula Hospital .

5.2.3. Advises for early feeding with specialized bottle/spoon/cup is to be given .

5.2.4. Strictly nasogastric tube should not be inserted..

5.2.5. Naso alveolar molding (NAM) Please contact Orthodontist at Al Nahdha Hospital for very early consultation within 2 weeks of birth.

5.2.6. .Lip strapping if NAM is not available or delayed.

5.2.6. Wide bilateral cleft lip might need unilateral lip repair at first stage.

5.2.8. Removal of nasogastric tube if inserted at other hospital , counseling for the parents and feeding under supervision in the hospital .

5.2.9. If born at some other hospital , follow up to be arranged in Cleft lip and Palate / Plastic surgery Outpatient clinics at the age of 6 -8 weeks.

5.2.10. .Early cleft lip and palate repair can be done after discussion with parents and admitting consultant (Lip repair at the age of 8-10 weeks and Palate repair at the age of 8-10 months if the rest of the parameters are normal)

5.3. Three – four months of age

Unilateral and Bilateral Cleft Lip repair

5.3.1. Repair of the cleft lip and correction of the nasal deformity (closed rhinoplasty and anterior palatal repair) followed by nasal retainer for -6-12 weeks /close follow up and training of mother or health care provider . (Monthly follow up until nasal retainer is removed for about 3 months)

5.3.2. Early discharge – 2nd post op day

5.3.3 Suture removal on the 7th post operative day .

5.4. Nine months – one year

Repair of palate +/- bilateral Grommet insertion

5.5. Two years of age

Speech assessment, repair of any secondary palatal defects .

5.6. Four - six years of age

Correction of residual lip deformities before joining the school ,

Speech assessment including Nasoendoscopy.

5.7. Six year

Initial orthodontic consultation.

5.8 Nine to eleven years

Alveolar bone graft (decision to be taken in cleft lip and palate clinic).

5.9 Thirteen – 16 years

Orthodontics vs. Orthognathic surgery

5.10. At completion of growth 16-18 years

5.10.1 Orthognathic surgery

5.10.2 Septoplasty/ Rhinoplasty/Genioplasty

5.10.3 Secondary touch up surgery

5.10.4 Final photos and consent for scientific publication

5.10.5 Discharged from care.

6. Procedure

6.1 Cleft Lip Repair

6.1.1. Pre operative work up (1-3 Months)

6.1.1.1. Preanaesthetic check up 2 weeks before surgery , All the routine blood investigations (CBC/Sickling/Blood Group/Rh typing and Coagulation Profile) to be done and admission one day before surgery.

6.1.1.2. If admitted without PAC , all the routine blood investigations must be done .

6.1.1.3. Routine work up/History /Examination .

6.1.1.4. No nasal or throat swab is needed

6.1.1.5. Referral to paediatrician if suspicion of URI

6.1.1.6. Contact ENT surgeon for possible grommet insertion (if the child is 6 months or more)

6.1.1.7. Clinical photo/Consent to be signed for full range of clinical photo (AP/Lat/Mental nasal views) for scientific publications/conferences presentation .

6.1.1.8. Informed consent(wound dehiscence, pressure necrosis due to stent) ,redo surgery /touch up surgery.

6.1.1.9. Don't send the patient out on pass without prior permission of craniofacial team/admitting Consultant.

6.1.1.10. Confirm the HD bed /ICU bed if patient with other comorbidity specially cardiac anomalies.

6.1.1.11. Admitting doctor/Nurse to explain the feeding advises in the pre and post operative period..

6.1.1.12. Early surgery ,lip adhesion (at 1 month), parents to be informed about reasons of surgery and need for 2nd lip surgery at the age of 3-4 months .

6.1.2. Intra and post op care

6.1.2.1 Oral intubations/ointment in both eyes/ ½ strength betadine solution to be used.

6.1.2.2 Standard draping with full face exposed including both eyes /no opsite /only eye ointment

6.1.2.3 .Standard surgical technique (such as Millard's repair with closed rhinoplasty) and Nasal retainer.

6.1.2.4. Bilateral infra orbital nerve block (on request) /Panadol suppository before extubating.

6.1.2.5. Nil orally 3-4 hours post operative period.

6.1.2.6. Tongue suture to be removed same day post op not later than 8.00 pm

6.1.2.7. Keep in HD until next morning /or as per consultant advise.

6.1.2.8. Analgesia-Panadol 10-15 mg/kg 4 hourly

6.1.2.9. Antibiotics intravenously for 24 hours – cefazolin 30 mg/kg /dose (One to 3 doses) .

6.1.2.10..Normal range of fluids per squeeze bottle/syringe after 3-4 hours and soft/victimized solids with spoon after 24 hours for 2 weeks if baby is older than 6 months and breast feeding after one week.

6.1.2.11. Discharge 2nd day if from Muscat or as directed by the Consultant if from other than Muscat region/or special request of parents/with clear post op care instruction and ward contact number/on call in case of emergency.

6.1.2.12. Suture removal in Day care surgery unit –booking to be made at 1st post op day

6.1.2.13. Suture removal 5th or 6th day rarely 7th day on special request

6.1.2.14. Arm splints for 2 weeks .

6.1.2.15. Nasal stent for 6-12 weeks (6 weeks compulsory).

6.1.2.16. Normal diet after 2-3 weeks

6.1.2.17. Clinical photo at the time of discharge or after suture removal/or after 6 weeks in OPD

6.1.2.18. Review at 3 weeks after discharge with Consultant then 6 weeks and 3 months/6 months/one year(cleft clinic)

6.1.2.19. Attendant certificate for mother 1 week post op (short medical report with recommendation of 1 week leave for care provider at home (Mother) after discharge

6.1.2.20. Clear instruction for home care and ward contact number to be provided to the parents if any issue related to patient's care /appointment.

6.2 Cleft Palate Repair

6.2.1. Pre operative work up (9-12 Months)

6.2.1.1. Preanaesthetic check up 2 weeks before surgery , All the blood investigations (CBC/Sickling/Blood Group/Rh typing and Coagulation Profile) to be done and admission one day before surgery.

6.2.1.2. If admitted without PAC , all the routine blood investigations must be done .

6.2.1.3. Routine work up/History /Examination .

6.2.1.4. No nasal or throat swab is needed

6.2.1.5. Referral to paediatrician if suspicion of URI

6.2.1.6. Contact ENT surgeon for possible grommet insertion (if the child is 6 months or more)

6.2.1.7. Clinical photo/Consent to be signed for full range of clinical photo /scientific publications/conferences presentation

6.2.1.8. . Surgical informed consent (Any undue post operative bleeding need to take back to theatre, Redo surgery, fistula formation, flap necrosis etc.)

6.2.1.9. . Confirm HD/ICU bed if patient with other comorbidity specially cardiac anomalies.

6.2.1.10. Admitting doctor/Nurse to explain the feeding advises pre and post oprative period. Speech pathologist to see if not seen previously to discuss and explain about feeding and future strategy regarding speech problems if any.

6.2.2. Intra and post op care

6.2.2.1. Oral intubations/ointment in both eyes/use ½ strength betadine

6.2.2.2. Standard draping with full face exposed including both eyes/no opsite

6.2.2.3. Standard surgical technique

6.2.2.4. Panadol suppository

6.2.2.5. Nil orally 3-4 hours/or until evening round (7.00 pm)

6.2.2.6. Keep in HD/ICU until next morning round/or as per consultant advise

6.2.2.7. Analgesia-Panadol 10-15 mg/kg 4 hourly

6.2.2.8. Antibiotics – Amoxyclav- 30 mg/kg/dose - intravenously- three doses.

6.2.2.9. Head elevation 30 – 45 degrees all the times, tongue stitch to be removed same post op day not late than 8.00 pm.

6.2.2.10. IV fluids at maintenance rate until tolerating adequate intake by mouth

6.2.2.11. Clear fluids with syringe /spoon after 3-4 hours / after evening rounds..

6.2.2.12. Normal range of fluids and liquid diet for 4 days & Soft diet (custard and jelly)with spoon/cup from 5th day for 3 weeks or as directed by the admitting Consultant.

6.2.2.13. The mouth should be rinsed with clear fluids after each food or fluid intake.

6.2.2.14. Arm splints 2 -3 weeks

6.2.2.15.Discharge 4th- 5th day/ or earlier as directed by the admitting Consultant .

6.2.2.16.Attendant certificate for mother 10 days after discharge (short medical report with recommendation of10 days leave for care provider at home (Mother)

6.2.2.17.Review at 3 weeks after discharge with Consultant then 6 weeks / 3 months/ 6 month/ one year (cleft clinic).

6.2.2.18. Clear instruction for home care and ward contact number to be provided to the parents in case of any issue/bleeding etc.

6.3 Palatal fistula Closure

Small Palatal fistula - Closure with local flap - minimum age for closure (2-3 years)

Large Palatal Fistula - Closure with tongue flap – minimum age for closure (8-10 years)

6.3.1. Pre operative work up (2-3 years)

6.1.1.1. Preanaesthetic check up 2 weeks before surgery , All the routine blood investigations (CBC/Sickling/Blood Group/Rh typing and Coagulation Profile) to be done and admission one day before surgery.

6.3.1.2. If admitted without PAC , all the routine blood investigations must be done .

6.3.1.3. Routine work up/History /Examination .

6.3.1.4. No nasal or throat swab is needed

6.3.1.5. Referral to paediatrician if suspicion of URI

6.3.1.6.Clinical photo/Consent to be signed for full range of clinical photo(AP/Lat/Mental and nasal views)scientific publications/presentation

6.3.1.7. Surgical informed consent(Bleeding, Recurrence and, 2nd surgery)

6.3.1.8.. Hospital stay -3- 5 days.

6.3.1.9.Arm splints are not required if child is above 3 or 4 years.

6.3.1.10. High dependency care if needed.

6.3.1.11. Admitting doctor/Nurse to explain the feeding advises pre and post operative period .

6.3.2. Intra and post op care

6.3.2.1. Oral intubations/ointment in both eyes/use ½ strength betadine.

6.3.2.2 . Standard draping with full face exposed

6.3.2.3. Standard surgical technique/Marcaine infiltration at the donor site if bone grafting done at the same time

6.3.2.4. Nil orally 4 - 6 hours. Can have clear fluid after 7.00pm

6.3.2.5. Head of bed 30-45 degrees

6.3.2.6. IV fluids at maintenance until tolerating adequate oral intake

6.3.2.7. Analgesia-continuous narcotic infusion/PCA for12 to24 hours as per anaesthetic protocol.

6.3.2.8. Antibiotics – Amoxyclav – 30 mg/ kg /dose TID - intravenously for 3 days.

6.3.2.9. Clear fluids with syringe / spoon after 4- 6 hoursl after the evening rounds . No straws or sucking.

6.3.2.10 . Normal range of fluids and liquid diet for 4 days & Soft diet (custard and jelly)with spoon from 5th day rarely 7th day for 3 weeks or as directed by the admitting Consultant.

6.3.2.11. Mouth should be rinsed with clear fluids after each fluid or food intake.

6.3.2.12.Chlorhexidine mouth wash 6 hourly for two weeks for older children/adults

6.3.2.13. Toothbrush should not be used until 3rd post op day but elder children can be allowed to use soft brush and clean the lower arch and upper lateral with care after 2 days.

6.3.2.14.. Discharge on 2-4th day or as directed by the admitting Consultant.

6.3.2.15.Attendant certificate for mother 1 week after discharge (short medical report with recommendation of 1 week leave for care provider at home (Mother)

6.3.2.16.Review at three weeks after discharge with Consultant then 6 weeks/ 3 months/6 months/Yearly follow up.

6.4 Correction of the Secondary lip deformities.

Minimum age for revision lip – Major correction /revision at the age 12 months to 18 months or at the time of palate repair if associated with cleft palate.

Isolated correction of the secondary lip deformity is any time after 1 year of 1st surgery.

Minor correction – at the age of 4 .

6.4.1. Pre operative work up

6.4.1.1. PAC 2 weeks before surgery and admission one day before surgery

6.4.1.2. If admitted without PAC-only CBC is needed (sickling if not done previously).

6.4.1.3 Throat and nasal swab is not required

6.4.1.4. Routine work up/History/Examination (Must mention the previous surgical details)

6.4.1.5. Referral to paediatrician if suspicion of URI

6.4.1.6. Contact ENT surgeon for EUA/Grommet insertion if any history or complaining of ear discharge and pain/associated cleft palate .

6.4.1.7. Clinical photo/Consent to be signed for full range of clinical photo /scientific publications/conferences presentation .

6.4.1.8.. Surgical informed consent (further correction might be required)

6.4.2. Intra and post op care

6.4.2.1. Oral intubatiosn/nasal and tube in mid line/ointment in both eyes/ ½ strength betadine to be used.

6.4.2.2. .Standard draping with full face exposed including both eyes/no opsite

6.4.2.3 .Standard surgical technique

6.4.2.4 . Panadol suppository

6.4.2.5 . Nil orally 3-4 hours/or until evening round (7.00 pm)

6.4.2.6 .HD is not required routinely .

6.4.2.7 Analgesia-Panadol 10-15 mg/kg 4 hourly

6.4.2.8 Antibiotics intravenously- Cefazolin 30 mg/kg/dose - one dose on induction

6.4.2.9 IV fluids at maintenance rate until tolerating adequate intake by mouth.

6.4.2.10Normal range of fluids per squeeze bottle / spoon / cup after 4-6 hours.

6.4.2.11. Normal diet same day or next day and possible discharge

6.4.2.11.Suture removal 5 day in day care surgery /Booking is required at the time of discharge

6.4.2.12 Attendant certificate for mother until suture removal (short medical report with recommendation of 1 week leave for care provider at home

6.4.2.12.Review at 4 weeks after suture removal followed by 3 months/6 month/one year

6.4.2.13.Clear instruction for home care and ward contact number to be provided to the parent.

6.5 Alveolar Bone Grafting

6.5.1. Pre operative work up (9 – 11 year)

6.5.1.1.PAC- 2 weeks before surgery and admission one day before surgery.

6.5.1.2. Routine work up/History/Examination /check OPG. Patient must have been seen by orthodontist (please check the OPD notes or a referral letter from orthodontist) and consent for ABG-+ extraction of if any tooth**.**

6.5.1.3. Nasal/Throat swabs are not necessary to be done **.**

6.5.1.4. CBC/Sickling if not done previously**.**

6.5.1.5. Ref to pediatrician if suspicion of URI**.**

6.5.1.6. Clinical photo/Consent to be signed for full range of clinical photo(AP/Lat/Mental and nasal views/scientific publications/presentation

6.5.1.7. Surgical informed consent(Bleeding, graft loss, 2nd surgery, donor area complications)

6.5.1.8. HD bed is not required routinely

6.5.1.9. Admitting doctor/Nurse to explain the feeding advises pre and post operative instructions.

6.5.2.Intra and post op care

6.5.2.1.Oral intubations and tube in the midline/ointment in both eyes/use ½ strength betadine

6.5.2.2. Standard draping with full face exposed

6.5.2.3. Standard surgical technique/Marcaine infiltration at the donor site

6.5.2.4. Iliac bone graft –inner cortex harvest-wound closure with vicryl/monocryl.

6.5.2.5. Nil orally 4- 6 hours. Can have clear fluid after 7.00 pm.

6.5.2.6. Head elevation all the time 30-45 degrees.

6.5.2.7.IV fluids at maintenance until tolerating adequate oral intake .

6.5.2.8. Analgesia - continuous narcotic infusion or PCA for 12 to 24 hours as per anaesthetic protocol.

6.5.2.9. Antibiotics-Amoxyclav- 30 mg/ kg/dose TID - intravenously for 3 days .

6.5.2.10 Clear fluids with cup after 4- 6 hours / evening rounds . No straws or sucking.

6.3.2.11. Normal range of fluids and liquid diet for 2 days & Soft diet (custard and jelly)with spoon from 3rd day for 3 weeks or as directed by the admitting Consultant.

6.5.2.12. Donor site drain removal after 48 hours if drainage is less than 20 cc.

6.5.2.13. Palatal/alveolar sutures will dissolve. Clear fluid oral rinses after eating or drinking .

6.5.2.14.Chlorhexidine mouth wash 6 hourly for two weeks

6.5.2.15.Toothbrush should not be used until 4th post op day close to operated site but lower arch can be brushed including premolar and molars

6.5.2.16.Discharge on 3rd- 5th day or as directed by Consultant.

6.5.2.17.Review at three weeks after discharge with Consultant than 6 weeks followed by 3 months/6 months/1 year(cleft clinic).

6.6 Correction of the Secondary Nose deformities (At the age of 16-18 years)

6.6.1 . Pre operative work up

6.6.1.1. PAC- 2 weeks before surgery and admission one day before surgery

6.6.1.2. Routine work up/History/Examination/Drug History/Previous surgery/Rhinoplasty.

6.6.1.3. Nasal/Throat swabs are not necessary

6.6.1.4. CBC/Sickling if not done previously.

6.6.1.5. Informed Consent for Clinical photo - full range of clinical photo(AP/Lat/Mental and nasal views/scientific publications/presentation.

6.6.1.6. Surgical informed consent- Nasal pack post op for 24-48 hours and external/internal splint usually 2 weeks, (Bleeding, Infection, Small risk of septal necrosis and persistence residual deformity 2nd 3rd surgery, complications related to donor area(Hip, Chest).

6.6.1.7. Hospital stay 2 – 3 days /or as directed by the consultant.

6.6.1.8. HD bed is not required routinely

6.6.2 Intra and Post-operative care

6.6.2.1. Oral intubations/ointment in both eyes/use ½ strength betadine

6.6.2.2.Standard draping with full face exposed up to the frontal hair line

6.6.2.3.Standard surgical technique usually open Rhinoplasty.

6.6.2.4. Silicon internal septal splint – if septoplasty done (removal after 2 weeks).

6.6.2.5. External nasal splint (usually thermoplastic large size)(removal 2-3 weeks).

6.6.2.6. Marcaine infiltration(0.25%) at the donor site

6.6.2.7. Nil orally 4 - 6 hours. Can have clear fluid after evening rounds.

6.6.2.8. Nasal pack for 24 - 48 hours.

6.6.2.9. Head elevation 30-45 degrees.

6.6.2.10IV fluids at maintenance until tolerating adequate oral intake.

6.6.2.11.Analgesia -continuous narcotic infusion/PCA upto 24 hours as per anaesthetic protocol.

6.6.2.12.Antibiotics cefazolin intravenously for 3 doses and if bone graft /cartilage graft is used – continue for 3 days .

6.6.2.13.. Can take normal diet same day or from next morning.

6.6.2.14. Suture removal after 5-7 days.

6.6.2.15. Discharge on 2nd day or as directed by Consultant..

6.6.2.16. Sick leave – 3 weeks after discharge.

6.6.3. Follow up

6.6.3.1.Review after 2 weeks for possible external and internal splint removal or as advised by consultant in charge

6.6.3.2. Clinical photos.

6.6.3.3 .Further follow up – 6 weeks,3 months,6 months and 1 year.

6.6.3.4. Clinical photo – 1 year post op.

6.6.3.5. Redo surgery /Touch up surgery/Genioplasty /Discharge from care.

7. Responsibilities

1. **Head of the Plastic Surgery Department shall:**
   a. Ensure this protocol is circulated to the treating doctors and the staff nurses of the concerned wards.
   b. Ensure the regular update of the protocol.

2. **Plastic Surgeons \ Training Doctors shall:**
   a. Be aware of this protocol and strictly follow it.
   b. Proper clinical examination, documentation, initiation of management, counseling of the parents \ caretaker and follow up.

3. **Pediatrician shall:**
   a. Regular follow up for the feeding advises,
   b. Assess the nutritional status of the child ,
   c. Treat the respiratory infections and general fitness for these children for surgery .

4. **Plastic Surgery Ward Nurses shall:**
   a. Apply treatment as per doctor instructions
   b. Monitor the regular follow up of instructions by the doctors as per the protocol and to report to treating doctor when needed.

1. Document History and Version Control

Document History and Version Control			
Version	**Description of Amendment**	**Author**	**Review Date**
01	Initial Release	Dr. Taimoor Al-Bulushi Dr. Mohudoom Meera Sahib	Aug-2017
02			
03			
04			
05			
Written by	**Reviewed by**	**Approved by**	

2. References:

Title of book/ journal/ articles/ Website	Author	Year of publication	Page
Text book of Plastic Surgery	Grabb and Smith	6th edition	179-297
Plastic Surgery	Peter C. Neligan	2013	503- 655
Plastic Surgery	Mathes	2006	
Plastic Surgery	Joseph G, McCarthy	1990	2437-3161
Millard's Cleft Craft	D.Ralph Millard	1976	