Infant mental health and feeding disorders from a pediatric perspective

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1 Introduction

A child´s ability to master the developmental milestones necessary to ensure health and growth by oral intake is organized by an inborn pattern of genetic information. This innate programming is responsible for the individual coordination of physiological, motor, neurological, sensory and psychological issues involved in feeding (Stevenson & Allaire, 1991). Social motivation, taste, smell and the appearance of food are the main external stimuli affecting a child‟s drive for seeking food (Harris, 1997; Birch & Fisher, 1995).

The facility to see, smell, taste and touch food, the ability to coordinate motor skills and sensory inputs by sucking, biting, chewing and swallowing, and the inborn pattern of pro-social behaviour are core variables of feeding. They influence every child‟s pattern of state regulation and progression towards learning to eat. Thus, feeding is an activity by which genetic information is expressed by a multitude of pre-determined features affecting all adults and all children involved in feeding; these aspects combine with environmental and cultural influences and are transferred from one generation to the next.

It is uncommon to find feeding disorders as specific reason for medical referral that result from medical factors alone. Any acute medical sources of the problem will usually demand immediate attention and specific intervention. The more frequent role of the physician is to help prevent feeding disorders develop in the first place and - once existent - prevent the pursuit of unnecessary examinations and ensure effective therapeutic intervention (Satter, 1995).

A feeding problem is**,** by definition**,** a difficulty between a person intending to feed or performing the act of feeding with a *to-be-fed* person. Any feeding situation in infancy involves the child and another person; it is interactive and is a meeting point of at least two personalities, two sets of minds, two sets of internal representations of what feeding is or should be, thus of two cultures. The definition of “at least two…” makes feeding in itself a challenging and complex part of human behaviour which has evolved over millions of years of human development. Thus, when looking at feeding more carefully, especially with the aim of trying to understand and help individuals with feeding problems, we find a fascinating mix of very many more influencing variables. Basically, feeding always involves the thinking and feeling of the adult as expressed in his or her feeding behaviour as well as the world of actions and reactions of the infant involved.

When highlighting the medical perspective in feeding problems, it is important to understand that there is *no exclusively medical problem which will not also influence the child’s development and surrounding care giving system* and at the same time *there can not be any primarily purely maladaptive psychosocial situation that will not eventually result in mayor medical problems* as e.g. in the case of failure to thrive, severe malnutrition or other potentially life threatening conditions.

Therefore, although this chapter will address the topic from a purely medical perspective, the reader is advised to bear in mind the complex interplay of interactions between physical, developmental and psychodynamic variables.

2 The role of the pediatrician or any medical professional

In any encounter of a feeding problem with the medical world, the role of the „third party" is mostly attributed to the paediatrician or *a* specialist of *another* medical discipline. This will *therefore be and become* a triadic situation (F. Frascarolo 2009), in which the medical professional can have four main positions:

2.1. Being an observer and advocate of the child on all functional levels including its physical findings further investigations

2.2. Being a cooperative partner to the parent involved by listening to their opinions and observations

2.3. Trying to keep at an equally distant position between both partners of the feeding situation, which may involve interpreting and explaining the interests of one to the other and vice-versa. This might involve the parent feeling supported or not.

2.4. Keeping out of the parent-child dyad, because it might be good to keep at a necessary distance from both the adult and the baby (thus forming a triade) so as to offer guidance and recommendations which can be made and accepted. It is also helpful to get the father into this supportive but non-involved position.

The paediatric profession is itself characterized by always having to deal with at least two parties involved whenever there are encounters with a child that is not old enough to present by his or her self. It is therefore necessary to find a comfortable position between the adult and child perspectives. Nevertheless, the paediatrician is clearly responsible for the physical wellbeing of the child and for investigating all physical causes that might affect the child"s capacity to feed. The physician"s goal is to *ensure* that information arising from medical observations and investigations is appropriately integrated into the child"s overall pattern of presenting symptoms. No symptom can be dissected from its functional level when dealing with feeding.

Of course the medical person in charge will need to make his decision depending on the specific setting he is working in and the specific quality of encounter with every child individually and its family. A child brought with feeding problems which is in a life threatening condition will always demand emergency treatment first**.**

Wait, watch and wonder…

Within the setting of the specialist feeding clinic, the physician‟s best choice at the time of the first encounter might be the www-motto of Selma Fraiberg (1918-1981): „wait, watch and wonder‟. To observe and listen actively might be the most effective initial intervention for the physician dealing with feeding problems. Homework asking parents to make a nutritional diary might ease the presenting feeding problem greatly. Since a referred child has usually been experiencing the presenting feeding problems for months, the decision to recommend two weeks of reducing pressure and document oral intake will hardly impose a medical risk and might well be a first step towards solving the problem. The solution for most feeding problems might just be time, trust and patience.

3 Time, development and growth: an analysis of influencing variables

The intake of nutrition is crucial for growth. Brain maturation and development are dependent on sufficient caloric intake and healthy nutrition. But growth is also a process dependent on time. *Growth can neither be condensed not stretched in time. Growth needs time.* The first years of life are a period of extensive rate of growth; it is because of this that the majority of medical referrals deal with the topic of infants and toddlers not eating enough. In some cases the diagnosis of being born “small for date” will cause pressure on the parents from the moment the child is born. When problems arise, external pressure can become so strong that child protection services might be involved. Aversive processes, such as force-feeding lead to the child developing refined mechanisms to fight against the intrusive or even abusive way of being fed.

The idea of increasing the oral intake of a baby by increasing the external pressure onto the feeding system is unrealistic and wrong (except for cases of neglect and deprivation) but not uncommon. Inappropriate expectations expressed by relatives and bystanders outside the mother-child dyad are one of the most frequent sources of stress, which again can have a deleterious impact on the child‟s feeding. The requirement to produce an „ideal‟ growth chart for every child is responsible for much suffering and seems especially unfair, since the medical histories of the affected children often are not at all typical ones.

The expectation of an accelerated growth trajectory often hits infants who are survivors of intensive care medicine and are just starting to develop an auto-regulated life outside the hospital. A vicious circle may then develop between the medical team, the parents and the child, which is typical in driving early feeding disorders. The task of the physician is to play an encouraging role in encounters with a child with feeding difficulties and at the same time keep a watchful eye on the possibility of rare and real medical issues involved.

3.1 Failure to thrive: Failure to thrive (FTT) is subdivided in literature into the NFTT (Non-organic Failure to thrive) and OFTT (organic failure to thrive). It can but does not necessarily present with a feeding problem. FTT is defined as a child having too little weight for growth for age. Typical reasons for OFTT are e.g. celiac disease; severe reflux, any tumor, neurodegenerative disorders and metabolic disorders. Typical reasons for NFTT are infants with primary (regulatory disorders) or reactive feeding problems (attachment problem, infantile anorexia), resulting in not being able to increase their oral intake to support their developmental demand.

3.2 Children with specific syndromes or disorders: There are many reasons why children may not follow their expected growth trajectories like infants with chromosomal anomalies, inborn syndromes, or any growth affecting problem like e.g. WHS (Wolff-Hirschhorn Syndrom), SRS (Silver Russel Syndrom) or Pierre Robin Syndrom. They demand genetic diagnosis and effective treatment of the behavioral aspects of disordered feeding if existent.

3.3 Children with feeding problems: Children with feeding problems (IFD: Infantile feeding disorder) tend to be frail, weigh too little and be fussy, choosy and picky. Their weight will often fall on the low side of growth-percentiles. Feeding problems are detected by mothers, families, nurses and doctors. Independent of the child‟s general development, growth might not follow the expected course. This again might result in more pressure, which will increase the child‟s functional symptoms, such as food refusal, gagging, retching and vomiting an increase his or her active avoidance behavior.

4 The impact of growth data and nutritional protocols

A child does not need to „catch up‟ with growth: unless there are severe behavioral or medical problems (see previous section), growth will usually be predictable according to a genetic program. Furthermore, children do not gain weight constantly and at equal pace during the first three years of life (Largo 2006). The curve of the percentile is an artificial representation of hundreds of tiny ups and downs.

Things to look out for include weight stagnation: except for the phase when the child starts walking (which can make the weight chart stay even for up to 2-3 months) an infant should not loose weight (unless by a clearly definable physical illness) and should at most show stagnation for the duration of 1-2 month.

The recommended average caloric intake in mls (in full please) can be estimated with a simple formula: kg body-weight divided by 0.7. The recommended daily intake of non-caloric fluids (water) – unless the child suffers from insufficient kidney function or any other reason of increased loss as having a fever, diarrhea or vomiting – is about half of this. A child of 5 kg will need about 700mls of caloric formula (0.7 cal/ml, resulting in an energy quotient of at least 100) and should be recommended to drink about 250-350 mls of water. Any concerns about insufficient growth must be expressed very carefully, so as not to do more harm than good. Since percentiles represent the statistical mean of any population, an individual child must be placed into the statistical „norm‟ with caution. It must be expected that any physician specialized in feeding disorders will encounter more infants with reduced bodyweights than the age-matched normal epidemiologic distribution shows and must take care not to expect unrealistic developmental changes.

Medical assessment based on the physical examination and the parent’s narrative

Pediatric evaluation will include a complete and thorough examination, including inspection of the mouth. The child needs to be weighed and the weight needs to be set into context with its age, length or height and head circumference. Inspection of the skin nails and hair must be undertaken in order to determine nutritional status. Blood and urine tests should be performed by indication. Details of digestive patterns, details and history of feeding or eating must also be included.

The role of the physician in feeding problems of young children is to be the manager in charge of the child‟s diagnostic assessment. He or she should define all additional examinations for further evaluation and should perform and coordinate the necessary communication with the non-medical team. Being a physician in the community or in an interdisciplinary team of a feeding clinic will provide many encounters with families and their infants suffering from feeding problems. In most cases the family will not be prepared to be referred for any kind of further developmental or psychological exploration or paramedical treatment without first being able to trust the leading physician completely. Even in feeding problems with a clearly recognizable behavioral origin, the fear of possibly missing a specific physical problem is great. This situation is often responsible for consuming much time and effort to obtain sufficient help.

Thus, any feeding problem of a young child - even more so as in adolescence or adulthood – suggests a holistic approach and analysis of the physical and developmental identity of the patient. A physician in the role of a family doctor might be able to do this more easily than a specialist for radiology, pediatric gastroenterology or ENT-specialist. Nevertheless, the position of medical manager for each case must be recruited independently of the physician‟s position in the medical hierarchy or defined field of specialization. In cases where the child is in pain or showing signs of malnutrition or when neurological symptoms are prominent, the physician will follow a clear diagnostic regime. The clinical finding of severe failure to thrive in the absence of specific imbalances of the feeding interaction itself always demands ruling out the existence of chromosomal abnormalities, problems of the endocrine system, damage to the central nervous system and brain or any mayor organ systems as heart, lungs, gut or kidneys as source and origin of the child‟s ability to grow normally. Thus, the physician is guided by his clinical experience and diagnostic impression of the presenting symptom – here the feeding problem as core symptom - before planning further examinations and interventions (Harris, 1998; Wolke, Skuse & Sheena, 2006).

Observation of Feeding from the medical perspective

The observation of one or more than one feeding situations is of paramount importance for the medical professional. In the case of a presenting feeding problem, it must be considered a mistake to suggest any further medical investigation or evaluation without having observed at least one feeding scene. The situation could be compared to prescribing an antibiotic in suspect of treating pneumonia without performing an auscultation or a chest or x-ray of the lungs. Whilst the behavioral monitoring of the child‟s feeding tends to be undertaken by the psychologist or behavioral specialist, it is extremely beneficial for the pediatrician or any medical doctor to be able to observe, either directly or indirectly through video recordings, and to have the opportunity to discuss events with the multi-disciplinary team, all of whom will have their different professional perspectives and contributions to make.

Essential first steps in the Feeding Clinic

2.1. The need to observe the child's feeding before doing anything else. A physical examination must also be performed with special attention for teeth, hair, nails, skin.

2.2. The need for a quantitative analysis of age, weight, height and average caloric intake. This will offer valuable information for planning further diagnostic interventions.

2.3. The need to look at the quality of the child‟s intake and insure a mixed and balanced intake of carbohydrates, proteins, fats, minerals, trace elements and vitamins.

2.4. The need to differentiate these facts from the parental perspective. The severity of a child‟s feeding problem can but must not correlate with its perception about it.

2.5. The need to establish a network with various professionals involved with patients with feeding problems, like psychologists, speech therapists and many more.

Medical assessment must follow a reproducible hypothesis about how a specific presenting symptom can be interpreted, evaluated and measured. It will aim to prove the existence of a medical origin of the feeding problem by „hard facts‟ with current medical and technical means. The analysis of blood values, hormonal status, growth assessment, ultrasound, pH-metry and esophageal manometry, video-laryngoscopy, endoscopy and gastroscopy are the most frequently recommended and common examinations in the workup of early feeding problems.

The challenge is when to decide to need to do what: the medical task is to be as selective as possible and at the same time as specific as necessary.

The parents need time to tell their story and to share their ideas about the child‟s medical history. However, it is important that this is not done in front of the child (with the exception of a baby sleeping); this part of the workup should only happen with the parents alone or, if unavoidable, the child should be engaged by someone else in play whilst the parents get a chance to talk. Some infants presenting with feeding problems are referred for medical evaluation without having suffered from any prior medical problems. In this case the feeding problem will be their first encounter with the medical world and special attention and diligence must be taken to understand the problem and ensure effective assessment and treatment. Many other infants will have been patients of neonatal, antenatal or post partum encounters with the medical world and will have their specific and individual story and medical history. This group of “survivors” of high-tech-medicine is a special risk group for developing feeding problems, because any psychological stress on the baby or its caregivers might present as origin for developing a feeding problem in a phase when the emergency interventions are over.

It must be remembered that parents of infants treated on NICU‟s can be traumatized, with long-term emotional effects (Benoit, Zeanah & Barton, 1989). Thus, since feeding is a part of interpersonal experience, it is possible that this could become a never ending story and source of projections, associations and fantasies about what the baby might have gone through. This mechanism, in turn, may be responsible for the parents assigning a causal connection between the babies‟ neonatal phase or a phase of surgical intervention (as after cardiac interventions) and later occurring feeding problems. The physician will be advised to have an interdisciplinary team to cover the wide range of methods necessary for the specific diagnostic assessment of the child and its caregivers. This will extend from psychological support for a parent to planning a videolaryngoscopy in the case of dysphagia. In both cases he or she will depend on experienced colleagues: the result of a swallow examination performed with a screaming child cannot be utilized and the result of the same examination done with a cooperative child will only be reliable if the radiologist has sufficient regular experience of this kind.

Assessment and diagnostic classification from a medical perspective

A classification system of the most common symptoms of feeding disorders is needed in order to identify and differentiate the mayor differences between types of feeding problems (Hofacker & Papoušek, 1998; Levy et al., 2008; Scheer et al., 2003). Existing diagnostic classifications offer only „catch-all" categories, such as „feeding disorder in early childhood" (ICD-10; F 98.2.) DSM 9 IV-R offers no specific acknowledgment for infantile feeding disorders. Current diagnostic systems fail to classify the range of frequent feeding problems in infancy and early childhood but are, thankfully, under review. The only classification system offering a spectrum of feeding disorders is the DC 0-3R, with 6 options of subclassifications which all cover common feeding problems of the first year of life. The DC 0-3R is compatible with DSM IV-R , also defines 5 axis of clinical interest (specific feeding problem, relationship pattern, medical condition, psychosocial stressors and the child functional emotional developmental level). It was developed and published first in 1994, revised in 2005 and is currently been translated into 16 languages. The following descriptions are personal and shortened adaptations of the original DC 0-3 R categories. For clinical assessment and routine use of the DC 0-3R classification system the use of the published diagnostic criteria is recommended.

Feeding Disorder of State Regulation (601, DC 0-3R): The presentation of a very young baby – mostly within the first 2 months of life - with this disorder is extremely specific:

Anna: It was clear that Anna wanted to feed. She was restless and hungry but would only suck for about 3 or 4 seconds, then wrench her head from her mother"s breast and start screaming. Her feeding consisted of this behavior repeated over and over again. Anna"s weight gain was poor and both mother and baby were exhausted. She was described as being irritable, with poor sleep and almost never calm, happy and relaxed. Feeding was reported to have never worked since birth and the problem had become worse with time.

The physician is advised to observe feeding and actively refrain from organizing any further examinations. Since the feeding problems mirror the child"s general difficulties in state regulation this fact needs to be addressed. Every kind of medical examination will affect the situation negatively and potentially harm the child. Treatment must commence immediately and will show success once the baby is supported in learning how to regulate and organize its states. The feeding problem will be solved as part of the coaching directed to the overall problem of state regulation. Physiotherapists with specific training will be of great help (please explain what the physiotherapist does). Since parents might misinterpret the child"s difficulties and symptoms as being purposely directed against them, the situation holds a risk for child abuse and immediate intervention and effective help are crucial.

Feeding disorder associated with attachment problems (602, DC 0-3R): If infants present with a feeding disorder between the age of 2-5 month, one must think of the possibility of an underlying attachment issue between mother and child. This must not necessarily be an overt post partum depression, it may also present as a non dramatic lack of pleasure and primary feeling of love, ease of handling and affection. IN many cases the psychosocial support system of the mother-child diade is missing and no compensatory network is available. The infants present as being lazy and lacking

energy in drinking, unfortunately mostly breastfeeding has been stopped. In these cases the question of support by the infant‟s father or any existing other social network is crucial and in most cases interaction guided psychotherapeutic counseling of the mother will be necessary.

Infantile Anorexia (603, DC0-3R): This category is described as a characteristic feeding problem starting to become dramatic around the child developing its own identity, showing willpower and mostly affects very bright infants around the age of 6-8 month. Much literature on this phenomenon has been offered by Irene Chatoor. The result of the bargaining and struggle for autonomy on the child‟s side and the mothers need for more control is pictured with a specific and characteristic kinck in the child‟s weight chart after the age of 6 month.

Sensory Food Aversions (604, DC0-3R): Drooling, gagging, coughing, choking are symptoms of dysphagia and impaired swallow function. They are frequent in children with sensory awareness problems, global developmental delay, infantile larynx, tracheomalacia, paralysis of the vocal cords or dysfunction of the epiglottis and are specifically symptomatic for all lesions of the brain. They are seen in infants who suffered from severe intra- or peripartal asphyxia, intraventricular hemorrhages, inborn chromosomal aberrations and other syndromes associated with impaired motor coordination, difficulties in adjusting their muscular tone to anticipated situations and also show impaired development of mirror neurons. Children suffering from PDD, pervasive developmental disorder must also be integrated in this group and need a highly specific and intensive therapeutic program to guide them to develop sufficient self feeding skills. These infants will all need a highly specialized diagnostic assessment of the swallow function with the goal of out ruling aspiration or – in the case of clear aspiration – will need the recommendation of feeding by gastrostomy as soon as possible. This category has been defined as specific for the presence of neurosensory and sensory awareness deficits in the context of feeding problems.

There are four main groups involved:

(a) Physically healthy children whose main finding is a different oral sensory reaction to tastes, food textures and smells as seen in children with pervasive developmental disorder, childhood autism and Down syndrome. These children hardly react to the offering of food, they often don‟t seem to understand the concept of feeding, will not imitate adults or feed dolls and show no playful feeding on a symbolic level.

(b) Children with a clear developmental and neurological impairment whose impact on sucking and the swallow function has often been neglected until the feeding disorder is detected. Sucking might have been possible but the beginning of feeding mushy foods and solids will mostly be the time of presentation. Since eating development is an integrated part of all fine and gross motor development, there is often esophageal reflux involved and any delay or pathology associated with impairment of neurological and sensory innervations will become symptomatic as soon as food volumes are increased or a more complex swallow function is needed.

© Picky eaters: Mostly of normal development and intelligence showing oral oversensitivity with very distinctive taste and texture preferences and a reduced list of accepted foods. Sometimes their habits seem to suggest the need for inappropriate attention of one caregiver but sometimes they will exhibit this highly selective behavior in all social groups and situations. A nutritional analysis and an estimation of social benefit versus social disadvantage is necessary to decide if and which treatment will be needed.

(d) Mixed oral sensory perception and awareness problems with included neurological motor deficits in swallow function, developmental delay and possibly neurodegenerative outcome of the underlying medical condition.

This category of children will need specific analysis and evaluation of the sucking and swallow function and coordination. Speech therapists will be of great help and should work together with the radiologist and ENT specialist to determine the best possible and safest way of feeding each affected child. For children suffering from PDD, pervasive developmental disorder, a psychologist specialized on developmental and communicational issues will need to be involved into treatment planning.

Feeding Disorder Associated with Concurrent Medical Condition (605, DC 0-3R)

Any underlying medical condition can affect the child's appetite, motivation and sense of exploration in a negative way; this can happen during the phase of the illness and possibly also after physical recovery. This counts for children who suffer from any kind of severe underlying medical condition like broncho-pulmonary dysplasia (the most frequent problem of the lungs resulting from premature birth and the respiratory problems associated with assisted breathing), other lung impairments, immune suppression after organ transplantation, impairment of kidney function, severe skin affections, burn injuries etc. If children have been through months of earlier hospitalizations, any cue of avoidance at the sight of food can be respected as positive signal of their luckily growing sense of self determination and recovery into normal life. Nevertheless, when poor appetite has led to weight stagnation or even a considerable weight loss, children must be told clearly that their body needs food to recover. Sufficient food might be the most important medication for the weakened body. Some children will catch up easily but children who have suffered from being on the low weight side before even falling ill might need nutritional supplements or even temporary tube feeding. Temporary tube feeding (by gastrostomy if the duration of severe illness is expected to extend 2 month) with coached tube weaning is definitely the better choice than weeks of nagging, urging, pushing and producing a secondary or chronic feeding or eating disorder. All feeding problems associated with a clear medical condition are classified by this diagnostic category. Whereas this subgroup was originally reserved for post-medical-episode feeding problems as can often be found after choking episodes, severe gastrointestinal infections, mouth infections ect., we also need to include children with feeding troubles after extreme prematurity, in association with organ transplants and oncological disorders, cardiac, pulmonary, renal and hepatic insufficiency or any rare metabolic disorders demanding a very bad-tasting specific diet.

In all cases of an existing medical condition it is the task of the medical manager to distinguish parameters caused by the underlying illness or its specific treatment or point out that the main problem seems to be growing behavioral conflicts of feeding due to its basically positive medical progress. The psychologist will be the physician‟s closest partner in this challenge (chapter 12).

Feeding Disorder Associated with Insults to the Gastrointestinal Tract (606, DC0-3R)

A child who will eagerly eat about one third of the expected portion but then start to scream and suddenly become unhappy is conspicuous of having pain due to reflux. Disorders of this kind

can occur after any kind of medical problems affecting tongue, mouth, larynx, esophagus, stomach, duodenum, gut and anal region. Investigations will all show positive findings in any kind of specific reflux assessment but symptoms will rarely react to medication alone if the core conflict of the feeding disorder is not addressed in the treatment plan. The most common problems of this group are children after surgery of cleft palates, esophageal atresia, duodenal stenosis, anal surgery ect.

Rare medical conditions

A child who starts to feed but very soon becomes very pale and appears to be nearly shocked, with increased heart rate and sweating probably has a dumping syndrome (explain). This rare but very impressive clinical presentation is in most cases a medically induced problem, resulting from force feeding with to large volumes or tube feeding and wrong site of the tube ending within the stomach with immediate expulsion by the pyloric sphincter.

A number of conditions with feeding difficulties have a genetic basis. It might not be detected by the existence of failure to thrive but will show more discrete symptoms like dysmormic features or discrete neurological deficiencies affecting swallowing. The genetic malformation can have anatomical, neuro-sensory or hormonal dysbalances which can be responsible for difficulties in feeding. A retrospective analysis of formerly exclusively tube fed children with chromosomal anomalies which could be weaned with no problem suggest that the impact on the parents is mostly responsible for the feeding problem more than the neurological or anatomical situation.

Posttraumatic feeding disorder as a diagnostic entity should be considered after choking experiences and repeated oral traumas, or as seen when feeding is performed by excessively traumatized parents. The more quickly the child and parents are supported to get over the situation emotionally, they easier they will be able to support their child.

Tube dependency should be classified as an own diagnostic category. Tube dependency is defined as unintended prolongation of tube feeding, be this by nasogastric or gastrostomy feeding, when the period of expected duration of tube feeding has been exceeded and learning to eat is not impaired by any kind of medical problem. The diagnostic features and characteristics on the infant‟s side have been described and recognized; where as the addictive patterns of emotional dependence and their behavioral appearance on the caregiver‟s side are still neglected.

5 Medical conditions commonly associated with feeding problems

The list of medical problems presenting primarily with a feeding problem includes any medical diagnosis affecting physical wellbeing, reflux, unsafe swallowing, constipation, extreme prematurity, brain dysfunction, children with lung, renal or cardiac problems and children with syndromes of unclear origin. Finding the correct diagnosis is crucial, since most cases will have a good prognosis, if treated early and specifically. We differentiate:

5.1. Chromosomal anomalies demanding immediate surgical intervention (604, 605)

5.2. Metabolic diseases needing immediate identification and specific treatment (605)

5.3. Malabsorption and other gastrointestinal problems with or without infections (606)

5.4. Functional problems: as in children with extreme prematurity, chromosomal anomalies, regulatory disorders, gastro-esophageal reflux, air trapping and constipation.

5.5. Neurological, neurodegenerative disorders and sensory dysfunctions affecting taste detection, food preference or the ability of safe swallowing (604,605, 606).

5.6. Very rare medical conditions causing reduction of appetite with wasting e.g. anaemia and other rare blood disorders, an undetected brain tumor or undiagnosed primary renal insufficiency.

5.7. Reflux as medical illness: Gastro-esophageal reflux is a mainly constitutional and functional problem, by which swallowed liquids move against the rules of gravity. The symptom is physiological and directly proportional to the quantity of mls placed into the stomach and basically shows good prognosis. In cases of suspected influence on a feeding problem, exact diagnostic assessment is important and – once proven - can mostly be influenced well by change of feeding habits and antireflux medication. Regular evaluation of any recommended pharmacological treatment is crucial. Before any surgical steps are taken (e.g. Nissen fundoplicatio), the diagnosis needs to be confirmed by impedance pH-metry, esophageal manometry and mostly endoscopy.

5.8. Late gastric emptying: The rate of transport of fluids and solids differs individually. In rare cases, the passage through the stomach exceeds 15 minutes, which can be caused by a hypertrophic pyloric sphincter or malrotation of the stomach. Suspected late gastric emptying as reason of presentation of a feeding problem is extremely rare and always demands confirmation and specific treatment by a team of experts.

5.9. Lactose intolerance and other food allergies: Some infants show an inability or difficulty to get along with traditional baby formula. Before drastic changes are made, a critical medical assessment should confirm or out rule any food intolerance. The impact of economics and advertisement must be acknowledged critically and specific diets and formulas should only be given with a clear medical indication.

5.10. Constipation: One of the most obvious and common causes of reduced appetite and insufficient weight gain is nothing else than irregular movement of the bowels or constipation, often in combination with frequent changes of formulas. The lack of fats, fibers and sufficient liquids are responsible for this misbalance and need to be corrected to insure regular and painless bowel movements.

6. Surgical and pharmaceutical options of treatment

The most common surgical interventions include Fundoplication, surgery of a diaphragmatic hernia, placement of a Gastrostomy or any specific abdominal surgery. All these interventions need to be clearly and specifically indicated from a medical point of view and should not be performed if the underlying specific diagnosis has not been confirmed by prior findings and examinations including Ph-metry, PH-Impedance Metry, Esophageal Manometry, Endoscopy, Barium swallow, Videofluoroscopy.

Centres dealing with children with feeding disorders must seek to set up a network with their colleagues from the departments of child surgery, radiology, gastroenterology, ENT and many more. Appetite stimulation drugs are not recommended for children under the age of five and any pharmacological reflux treatment must be reevaluated every 6 months. The decision to set an end to

recurrent vomiting by intervention of fundoplicatio (Nissen) must be discussed very carefully and needs a clear medically based indication.

7 Case vignette

Session 1: Shirley, 15 months, is brought to the clinic for the 6th time. She has not gained weight for the past six months. Prior to that she was a completely healthy, well thriving, fully breast fed baby with excellent development at all levels. Her mother reports that she never took to solids offered by spoon and never enjoyed food from a jar and this is why breastfeeding was continued. The percentile shows good weight gain for the first 7 months of life, all growth parameters were on the 50th percentile. Between the age of 8 month and now, her weight has levelled out flatly, she went through some infections of the upper airways, but generally her motor development has been within the normal range and she is sitting, standing and walking by her self. On this occasion of seeing Shirley, she has a fever and has stopped eating and drinking for nearly 2 days. Shirley shows weight stagnation for 6 months. Her weight has fallen to the 3rd percentile, her length has also slowed down and is currently on the 25th. Nevertheless, she still looks well and active but refuses to drink anything, or even to breast feed. Fortunately her nappies have still been wet.

Medical examination reveals a sore throat and some blisters on the tongue, suggesting that Shirley is suffering from an acute viral mouth infection which explains the current symptoms. This can be handled easily. But it is also obvious that this is not the full extent of the problem. She has clearly developed failure to thrive even though the situation from a medical point of view is not yet dramatic.

Shirley is given medication to reduce the fever and to relieve the pain in her mouth and her mother is asked to bring her back for a check up and „feeding session" in 3 days. The mother is asked not to offer Shirley any food 3 hours prior to the next scheduled session.

Session 2: Shirley has recovered, the fever is gone and she has started to ask to be breast fed again. Her mother is asked to provide and feed her some baby food. The feeding scene has not even begun when Shirley is screaming at the top of her voice whilst her mother is nervously searching for the right spoon. It is obvious that Shirley does not want to be fed. The conflict is apparent; Shirley seems quite a strong personality, she is not willing to accept what her mother wants her to do and her mother seems exhausted and desperate. She turns to the paediatrician and says: „See that, this is exactly what it"s been for 6 month now!"

There are three potential courses of action from this point:

An **solely medical intervention** would include a blood count, thyroid and growth hormones, referral to a specialist for gastroenterology and also possibly for abdominal ultrasound.

A **parent-focused psychological intervention** might focus on Shirley"s mother"s long story of stress. This might reduce some emotional stress but will not change the quality of the feeding problem.

Specific counselling by an experienced paediatrician or general medical consultant will clearly recognize the conflict of interests and will explain that any bright child at the age of 15 month needs more autonomy and wants to do things by itself.

It was advised that Shirley should proceed to finger food and needs to catch up with self feeding skills. Mum should actively refrain from continuing feeding by spoon and should not offer any mushy food. This will take some time. Mum and Shirley should return in 2 weeks and mum should write an intake diary, documenting everything her child eats or drinks. Shirley should be allowed to have two baths a day in luke warm water with no soap added and play with some toys in the water. For the rest of the day, toys should be removed and replaced by 2-3 dolls dishes with small amounts of snacks. Shirley should invite children to play, organize picnics with her dolls and should “help” her mum in the kitchen and for the time being breast feeding should be reduced to falling asleep times and when waking up during the night. The only person from whom Shirley‟s mother most probably will accept advice is her paediatrician. The probability of success with this kind of medical attention, taking nor more than 10 minutes, is high! Unfortunately, the probability of the condition of failure to thrive continuing is even higher, thus risking more stress for the caregiver and clearly includes a higher risk of developing a severe growth problem if the feeding problem is not solved soon.

The outcome of this vignette was good and simple. 3 brief checkups followed after the first assessment and the child could be recommended to reassume its normal medical checkups at the local physician.

Summary

Since any of the medical problems mentioned in this chapter could become apparent exclusively by the split criterion of „nothing but‟ a feeding problem, the observation of an actual feeding situation is crucial and must always be performed before any further investigations are made. It will cost no more than 10 minutes, should be performed by an experienced observer and – in the rare case of detecting an underlying medical problem - will mostly show discomfort, dysphagia, pain or the absence of behavioral symptoms like primary visual food refusal and active food avoidance. In all cases of a non-behavioral origin of the feeding problem, the underlying medical problem will need to be diagnosed as fast and as accurately as possible. Treatment must be effective and should be evaluated, since the development of consecutive failure to thrive should be avoided. Secondary behavioral symptoms including parental over-involvement and anxiety are common in feeding disorders of medical or non-medical origin. A medical checkup includes a developmental assessment of the infant‟s motor abilities associated with eating and self feeding patterns. A new condition defined as tube dependency will be dealt with in a later chapter, since it may develop as an unintended side effect after long term tube feeding after any reason. Tube dependency should be recognized as a tragic outcome of non resolved feeding problems and is in itself a serious condition with a high risk of the development of secondary problems.

Literature: *all papers in Blue are published by coworkers of the Graz group and include case histories of the approach as cited in my article. Also www.notube.at / our Philosophy*

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