

# CASE STUDIES

USING THE CARUM HOSPITAL GRADE BREASTPUMP



Happy  
Mothers for  
Happy Babies



ardo  
SWITZERLAND

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The following case studies and their conclusions describe the experiences of the authors.

# FOREWORD

Dear Health care professional

This leaflet is designed to demonstrate, through a variety of case studies, how the Carum breastpump can be used and what breastfeeding problems it can address. It reflects specific situations in your everyday working life and is intended to help you find individual and successful solutions for the mothers in your care, to enable them to enjoy their breastfeeding relationship despite adverse conditions.

Using relevant indications, the leaflet illustrates informative, instructive success stories that can also be used for training purposes.

It provides practical and essential information about the Carum breastpump, to enable you to use the breastpump meaningful and competently.

By reading this leaflet, you will gain in-depth knowledge on how to manage pumping, including information on increasing milk supply and expressing breast milk painlessly.

You can use these case studies to support you in your valuable daily work.



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# PUMPING TO ESTABLISH MILK PRODUCTION WHERE A BABY IS PRETERM

## Short history

The 32-year-old mum-to-be delivered her son Jakob by Caesarean in the 34<sup>th</sup> week of pregnancy due to her waters breaking early.

## Findings

With a birth weight of 1890 g and respiratory adjustment disorders, Jakob was transferred to the neonatal unit in the same hospital. Jakob needed respiratory support for the first few days, was in an incubator and could not be breastfed.

On the 5<sup>th</sup> day postpartum, the patient suffered from painful nipples.

## Management of pumping

Ms K. started expressing with the Carum 8 hours after the Caesarean delivery. In the following days, she selected stimulation mode to stimulate milk flow and then used the smooth transition to expression mode. She emptied her breast every 3 hours during the day and once at night. She took the colostrum to Jakob in the paediatric clinic. Thanks to expressing regularly with the Carum, the milk came in on the 5<sup>th</sup> day postpartum – despite the physical separation and her anxiety about her son.

However, Ms K. was bothered by sensitive painful nipples, although they were intact. After checking of the breast shell size and adjustment from 26 mm to 28 mm, the

Carum was also reset to the "Sensitive Programme". To provide relief the "Sensitive Programme" starts with a barely noticeable vacuum and deep cycle. After this, Ms K. emptied her breast for 15–20 minutes every 3 hours, and gently massaged it at the same time.

On the 8<sup>th</sup> day, she was able to express without pain and produced a daily supply of 260 ml of breast milk. To increase milk supply, the mother was changed to double pumping. While expressing, Ms K. always used the stimulation mode in order to reactivate the let-down reflex.

Fortunately, Jakob's state of health had improved. Ms K. was finally able to have skin-to-skin contact with her son and express in his presence.

## Result

After 16 days postpartum, the milk supply had been increased to 580 ml per day.

At 3 weeks, Jakob was able to be breast-fed. As he was not yet drinking enough at the breast, the remainder of the expressed breast milk was fed to him via gastric tube. Ms K. continued to express with the double pumpset after breastfeeding the infant.

Ms K. was discharged and came during the day to see her child in the clinic. At night, she continued to express milk at home using the Carum breastpump and the double pumpset.

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## Conclusion

The individually selectable stimulation mode helped with triggering the let-down reflex.

Double pumping with the Carum resulted in an increase in the milk supply.

The Carum's "Sensitive Programme" enabled Ms K. to express milk when she was suffering with painful nipples.

Thanks to the availability of the different breast shell sizes, the correct breast shell was able to be found.

The Carum stood up to every challenge.

# PUMPING TO ESTABLISH MILK PRODUCTION FOR A BABY WITH SEVERE SHOULDER DYSTOCIA

## Short history

The mother felt fit and well. 3<sup>rd</sup> pregnancy; no irregularities. She exclusively breastfed her two other children, now 2 and 5 years old.

## Findings

The baby was born at term + 9 days but had severe shoulder dystocia. She was resuscitated, transferred immediately to the intensive therapy unit, intubated and ventilated. The diagnosis was hypoxic-ischemic encephalopathy.

The mother recovered well from the delivery from a medical point of view but was obviously very shocked and concerned.

The same day the little girl was moved to the high dependency unit and the opportunity was given to feed directly from the breast, which was successful. The mother continued to breastfeed whilst with her infant and expressed enough milk at home for the baby's needs when she was not with her. Despite suffering from Erb's palsy on her left side, by day 7 the baby was thriving and gaining weight and was moved to the low dependency unit.

## Management of pumping

The mother double pumped every 3 hours in hospital for 5 days. She established a good milk supply, which was fed to her baby via nasogastric tube.

By day 5 the mother was discharged but no breastpump was available at the hospital. The mother found my details on the internet and came to me on the evening of day 5 to hire the Carum breastpump.

I gave her a full explanation and demonstration of the breastpump, because the Carum was different from the type she had used in hospital.

### Result

On day 12 the baby was discharged home exclusively breastfeeding. The mother returned the breastpump to me.

By the time the little girl was 14 weeks old the Erb's palsy had subsided and she was reaching all the milestones for her age. She continues to breastfeed exclusively.

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### Conclusion

The mother was extremely grateful that such an efficient breastpump was easily available locally on the evening of her discharge. She found the breastpump very easy to use and very efficient. She made full use of the adjustable stimulation and expression modes on the breastpump.

She particularly liked the quiet workings of the breastpump and the light and timer were "fantastic!" These features allowed her to pump at night without disturbing her husband. Overall she described the experience as literally "a life saver".





# PUMPING WITH MILK COMING IN – THE MILK DOESN'T FLOW

## Short history

This was a 25-year-old first-time mother. 35 weeks + 3 days into the pregnancy a Caesarean section was performed due to cholestasis. The mother had enormous breast growth during the pregnancy.

## Findings

On the 3<sup>rd</sup> day postpartum, the milk coming in occurred, with massive breast swelling. The milk stopped flowing.

## Management of pumping

As the baby was still too weak to suck, 12 hours after the birth the mother started pumping with the Carum and a size 28 mm double pumpset. She double pumped every 3 hours during the day for 12 minutes (including 2 minutes of stimulation pumping). Then she pumped each breast for 5 minutes while simultaneously massaging the breast.

At night-time she took a break of 6 hours. To make the baby's early start in life easier, it was held in the kangaroo position for several hours a day. Mother and baby enjoyed this intimate skin contact.

On the 3<sup>rd</sup> day postpartum, massive breast swelling occurred and the milk stopped flowing, or there was a maximum of only 1 ml per side.

The mother switched from double to single pumping. Before pumping, she performed a brief breast massage (Plata Rueda massage) with both hands.



She pumped for 15–20 minutes per side and took a break of 1–2 minutes in between, to drink something and give the breast another Plata Rueda massage.

While pumping, the mother massaged her breast with one hand (Marmet technique).

Afterwards, cold compresses and at night, pasta boli (salicylic acid) compresses were applied. After that, the breast engorgement declined significantly. The milk supply increased to approx. 5 ml per side.

## Result

On the 4<sup>th</sup> day postpartum, the swelling had decreased massively, the milk was coming in better and the pains and hardening of the breast had reduced.

On the 5<sup>th</sup> day postpartum, the swelling had subsided completely and the mother was able to express 60–70 ml of milk each time. With continuous massaging of the breast while pumping, sometimes the milk actually squirted out of the breast.

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## Conclusion

Upon initial let-down, single pumping with the Carum and a massage while pumping is advisable. It resulted in a rapid subsiding of swelling, hardening and pain, as well as better milk flow and an increase in the milk supply.



# PUMPING WITH MILK COMING IN – THE BABY CANNOT LATCH ON

## Short history

The 37-year-old patient, 1<sup>st</sup> pregnancy and 1<sup>st</sup> birth, delivered her son spontaneously. She gave birth on schedule 40 weeks + 2 days into the pregnancy. The mother was assisted with first putting the baby to the breast in the delivery room. Subsequently on the maternity ward, she was given no further guidance with regard to breast-feeding, as the staff were overstretched or the ward was understaffed.

## Findings

On the 2<sup>nd</sup> day postpartum the mother had heavily swollen breasts whilst milk was coming in. The areola and mammillae were so swollen that the baby could no longer latch on and breastfeeding was very painful.

## Management of pumping

The breastfeeding consultant performed a colostrum massage by hand (obtaining the colostrum by hand). After the massage, the breast was gently pumped with the Carum. The feeling of tension in the right breast eased a bit.

The mother had much more difficulty with pumping the left breast, but the areola became a little softer. As a result, after pumping the baby was able to latch on that side again and suck efficiently.

While the baby was being nursed on the left side, the mother simultaneously pumped the right breast. In this way, the let-down reflex stimulated by the baby could additionally be used for efficient pumping on the right side.



Photo source: Elke Vogt

### Result

As her breasts had been visibly emptied, the mother very quickly felt more comfortable. It was a satisfying feeling for her not only to pump, but also to be able to breastfeed her baby.

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Two hours after this procedure, the mother once again pumped briefly before putting the baby to the breast. The baby fastened on to the breast without any problem. The mother was able to exclusively breastfeed her son for 6 months, and thereafter breastfed him until 9 months with supplementary solid food.

### Conclusion

With massive initial let-down, the combination of pumping with the Carum on one side and simultaneously breastfeeding on the other side can be helpful.

Pumping briefly before putting the baby to the breast can also make the areola softer or more flexible, thus making latching on easier.

The mother's well-being was enhanced and her desire to breastfeed was supported.

# PUMPING WITH SORE NIPPLES

## Short history

This was a 37-year-old second-time mother. Her first child is 11 years old. She gave birth spontaneously. After the birth, a curettage was performed due to placental remains in the uterus.

The newborn was able to suck at the breast in the first two hours after the birth.

## Findings

The baby was breastfed regularly. However, it fell below the 3<sup>rd</sup> percentile and was therefore fed BEBA H.A. with a cup, when restless, based on a medical indication.

The mother's nipples became increasingly red and the pain when breastfeeding increased. On the 3<sup>rd</sup> day postpartum, she rated the pain when breastfeeding as 9 on the pain scale (VAS) (0 = no pain, 9 = most severe pain). For this reason, the mother understandably did not want to continue breastfeeding.

## Management of pumping

Together with the mother, it was decided to take a break from breastfeeding the baby and she was taught how to pump with the Carum. It was explained to her how important it is to adjust the cycle and the vacuum according to her individual comfort, both in the stimulation and in the expression mode, so that the pumping is free of pain and the nipples are able to heal

quickly. The patient went home the same day and took a rental Carum with her.

## Result

Through exclusively pumping for 4 days, the nipples healed to the extent that the baby was able to be breastfed again with support from an IBCLC breastfeeding consultant. From then on, the mother breastfed exclusively and was able to enjoy breastfeeding.

## Conclusion

For mothers with painful nipples who no longer want to nurse the baby, it is important that they be able to adjust the vacuum and the cycle on the breastpump individually at any time. Often the level of comfort is not the same on both breasts, so vacuum and cycle need to be adjusted for each breast, that is, the breasts must be pumped individually. The mother therefore has control over the pumping at all times, which gives her security.

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# PUMPING WITH FISSURES

## Short history

This was a 35-year-old patient, 4<sup>th</sup> pregnancy and 1<sup>st</sup> birth after three miscarriages. The birth was induced 39 weeks + 3 days into the pregnancy because of excessive strain due to the pregnancy. A Caesarean section was then performed due to extremely painful contractions.

## Findings

The mammillae are not clearly protruding and not shaped. Areola and mammillae form a dome; the transition from one to the other is not well defined.

In the first 24 hours the baby was correctly breastfed on both sides every 4–6 hours. However, after 24 hours intense reddening and deep circular fissures started to appear, which were very painful.

## Management of pumping

In order to relieve the injured nipples, after 24 hours a breastfeeding break was agreed and the mother was taught how to pump with the Carum. The patient was to pump every 3 hours with a 26 mm pumpset. The vacuum was intentionally set very low and the cycle was set in the middle range, so that the pumping session was free of pain.

After a breast massage, the patient double pumped for 12 minutes, then on each side for 5 minutes, and massaged the breast simultaneously. There was still no visible

colostrum. The mammillae were additionally treated with sage tea compresses and mercury tincture. At the mother's request, the baby was given a bottle and was fed with formula.

On the 3<sup>rd</sup> day, it was noticed that during pumping, the circular fissures were resting against the funnel joins of the breast shell. The milk was still barely coming in. The vacuum was set very high. The patient believed she needed the high vacuum in order to extract at least a drop of milk. She was very anxious that she would never be able to produce milk. She was not aware that the pumping in the first few days serves primarily to stimulate milk supply, and quite a few days may elapse before the milk starts to come in.

Despite this, the mammillae were a little less red, but the fissures were still open.

The process of milk supply was explained to the patient again, and she was instructed in the correct pumping procedure; an effort was made to alleviate her anxiety about being unable to produce milk.

The selection of a 28 mm breast shell ensured that the funnel join no longer pressed on the fissures.

## Result

2 days later, on the 5<sup>th</sup> day postpartum, the patient continued to pump but with moderate vacuum. The fissures were healing and she was able to change back to the 26 mm breast shells.

The breasts had become full in the night and produced 15–20 ml of milk per side. The patient was now confident that she was able to produce enough milk.

She took a Carum breastpump home on hire. Once she feels confident enough to try to latch on again, she will contact the breastfeeding outpatient clinic for a guidance session.

## Conclusion

A break from breastfeeding and pumping with the Carum, with individually and gently adjustable vacuum and cycle, can be helpful with sore nipples.

Checking the pumping procedure and choosing the right breast shells are important, especially if the sore nipples show no improvement. Providing information about the physiology of milk supply and the level of the vacuum is vital.

If the funnel transition presses on the sore areas when there are circular fissures, the patient needs to change to a bigger breast shell.

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# PUMPING WITH ENGORGEMENT AND TO INCREASE MILK SUPPLY

## Short history

42-year-old Ms M. gave birth to her son Luca in the 39<sup>th</sup> week of pregnancy. Due to failure to progress in labour, an epidural was given. Ms M. suffered massive blood loss and her Hb level dropped sharply. Let-down was delayed, and she therefore expressed with the Carum in addition to breastfeeding.

## Findings

At a home visit 3 weeks after discharge, Ms M. had an engorgement in the right breast on the outer lower quadrant. Size: 3 x 5 cm. The breast was reddened, hot and painful to the touch. The patient was afebrile.

Because Ms M. had had sore nipples during her stay in hospital, she was still pumping every 2–3 hours. However, the milk supply was reducing progressively. She was feeding her baby 220 ml per day of artificial baby food. Ms M. was very anxious about the pain of breastfeeding. The nipples were intact.

## Management of pumping

After being briefly informed that where the mammillae are intact breastfeeding correctly is not painful and it is important to latch on the baby with his mouth wide open, the mother was prepared to attempt a breastfeed. She was able to breastfeed the baby in the football hold without pain, and

at the same time the hardened area was gently massaged. The engorgement slowly cleared. After breastfeeding, the mother pumped with the Carum on medium vacuum and medium cycle, and the hardened area was massaged at the same time. Afterwards, the hardened area could barely be felt anymore. The mother found the cold compress that followed pleasant.

In order to increase milk supply, Ms M. breastfed as needed and additionally pumped with the Carum 3–4 times per day, using a double pumpset and according to the Arnold "power pumping" method (Arnold, 2010:143). That is, she first massaged both breasts using the Plata Rueda method. Then she pumped three times for approx. 5 minutes each time, and took a break of 1–2 minutes in between to have a drink. Ms M. therefore pumped for a total of 15–20 minutes.

The milk supply increased noticeably and the artificial baby food was able to be gradually reduced.

### Result

After 2 days, the milk duct obstruction had cleared. The breast was soft again and no longer painful to the touch.

A week later, Ms M. was able to feed her son exclusively with breast milk. She wanted to continue pumping and breastfeeding. On the one hand, she wanted to have a milk reserve for when she went back to work. On the other, Luca's father was also able to feed him at night. This is likely to be possible for quite some time, as Luca can suck on the breast and on the bottle alternately without any problem.

At 8 months, Luca was still being breastfed.

### Conclusion

The engorgement was able to be cleared through the combination of breastfeeding and pumping with the Carum, with simultaneous massage and use of compresses.

Milk supply was increased through efficient pumping with the Carum, double pumping and the use of Arnold's "power pumping" method.

The Carum helped both with clearing the milk duct obstruction and with increasing the milk supply.

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