

PATENT DUCTUS ARTERIOSUS (PDA)

A SIGNIFICANT CHALLENGE

Constriction of the ductus arteriosus is a critical step in postnatal circulatory transition. If the ductus remains open, Patent Ductus Arteriosus (PDA) occurs, resulting in left-to-right shunting that can create significant challenges, especially in premature infants.

Challenges include:

- Pulmonary over-circulation in lungs that are already under duress¹
- Systemic hypoperfusion¹

A COMMON OCCURRENCE

- A PDA is present in approximately 1 in 2,000 newborns¹
- The incidence of PDA in preterm babies is considerably higher (20-60%)²
- For low birth weight infants (< 1,200g), PDA incidence is > 80%²



THE INCIDENCE
OF PRETERM PDA²



>50% PDAS REMAIN
OPEN AT 3 WEEKS FOR
INFANTS <1,000g¹⁰



SURGICAL LIGATION LIMITATIONS

While surgical ligation has been performed extensively with high closure rates, studies indicate significant procedural complications. Data shows 32% of premature infants required inotropes following PDA ligation.³

Other risks associated with PDA ligation include:

- Bleeding, infection⁴
- Neurodevelopmental delay⁴
- Recurrent laryngeal nerve injury (vocal cord paralysis)^{5,6}
- Injury to lymphatic vessels (chylothorax)^{6,7}
- Post ligation cardiac syndrome (hemodynamic compromise post procedure)⁸

“Use of surgical ligation, however, was significantly associated with the development of chronic lung disease and was independent of immature gestation, other patent ducts arteriosus related variables, or other perinatal and neonatal risk factors known to be associated with chronic lung disease.”

— CHORNE N, ET AL. *PEDIATRICS*. 2007; 199;1185.⁹



Amplatzer Piccolo™ Occluder

A PROVEN SOLUTION FOR SAFETY

Transcatheter PDA closure in premature infants is associated with lower mortality and reduced length of stay.

Since the global launch of the Amplatzer Piccolo™ Occluder in 2019, over 400 physicians have performed this life changing procedure in over 20,000 patients. The clinical trial data combined with expert experience and their associated publications prove the safety and effectiveness of PDA closure with the Amplatzer Piccolo™ Occluder.

BUILT ON THE EXTENSIVE AMPLATZER™ LEGACY OF SAFETY AND EFFICACY

- Pioneered transcatheter occlusion
- Over 1.25 million devices implanted worldwide¹¹
- More than 25 years of clinical experience

CLINICALLY PROVEN OUTCOMES

The safety and efficacy of the Amplatzer Piccolo™ Occluder in patients weighing ≥ 700 grams was studied in a 50 patient pivotal trial and 150 additional patients under a continued access protocol. When combined, the studies enrolled a total of 200 patients. At the time of the procedure, 100 patients weighed ≤ 2 kg and the other 100 patients weighed >2 kg.

AMPLATZER PICCOLO™ 3-YEAR FOLLOW-UP DATA



IMPLANT SUCCESS³

99.0% for patients ≤ 2 kg
92.0% for patients >2 kg



EFFECTIVE CLOSURE³

At 3-year follow-up only IDE patients included a 3 year echo.



3-YEAR SURVIVAL³

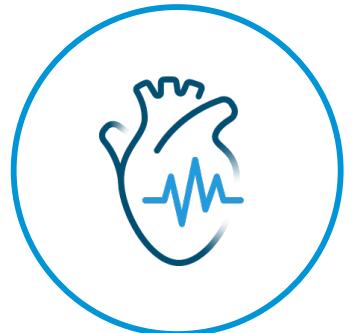
No deaths were directly attributed to the procedure or device itself.

TOTAL NUMBER OF PATIENTS: 200	≤ 2 kg (N=100)	>2 kg (N=100)	Total (N=200)
DEMOGRAPHICS			
Age, Months			
Mean \pm SD	1.25 \pm 0.60	26.58 \pm 44.32	3.92 \pm 33.74
Range	(0.30 - 3.15)	(0.49 - 216.80)	(0.30 - 216.80)
Weight (kg)			
Mean \pm SD	1.25 \pm 0.35	11.25 \pm 13.52	6.25 \pm 10.77
Range	(0.70 - 2.00)	(2.02-68.50)	(0.70 - 68.50)
PDA CHARACTERISTICS (by angiography)			
Minimal PDA Diameter (mm)			
Mean \pm SD	2.8 \pm 0.7	2.4 \pm 0.7	2.6 \pm 0.7
Range	(1.4 - 4.0)	(1.0 - 4.0)	(1.0 - 4.0)
PDA Length (mm)			
Mean \pm SD	10.6 \pm 2.2	10.1 \pm 3.4	10.4 \pm 2.9
Range	(5.3 - 19.2)	(4.1 - 20.0)	(4.1 - 20.0)
PROCEDURE CHARACTERISTICS			
Implant Success (%)	99.0% (99/100)	92% (92/100)	95.5% (191/200)
Fluoroscopy Time (min)			
Mean \pm SD	10.5 \pm 12.4	10.1 \pm 7.0	10.3 \pm 10.0
Range	(3 - 103)	(3 - 43)	(3 - 103)
Anterograde Implant	100.0% (99/99)	73.9% (68/92)	87.4% (167/191)
Femoral Arterial Access	2.0% (2/100)	48.0% (48/100)	25.0% (50/200)
In NICU at time of baseline assessment	100.0% (100/100)	32.0% (32/100)	66.0% (132/200)
OUTCOMES			
Major complications rate through 180 days (%)**	4.2% (4/96)	0% (0/98)	2.1% (4/194)
Effective closure at 6 months (%)	100% (89/89)	98.8% (83/84)	99.4% (172/173)

*Assessed by echocardiography and defined as the presence of either a grade 0 (none) or grade 1 (trivial) shunt.

**Major complications were defined as “device or procedure-related adverse events resulting in death, life-threatening adverse event, persistent or significant disability and/or surgical intervention.

ONLY YOU CAN REDUCE RISKS WITH A TRANSCATHETER PDA CLOSURE REFERRAL



NEONATOLOGIST CONSIDERS

- Is the PDA hemodynamically significant based on echocardiographic and clinical assessment?
- Is medical therapy contraindicated or has it already failed?



MULTI-DISCIPLINARY TEAM DETERMINES

- Is transcatheter PDA closure clinically appropriate?



PDA CLOSURE

MAKE CLOSURE THE PRIORITY

By referring to an interventional cardiologist, you can help reduce the risk for a wide range of patients.



For more information about the Amplatzer Piccolo™
Occluder, contact your Abbott sales representative or visit
PICCOLODEVICE.COM or SCAN THE QR CODE.

Rx Only
Important Safety Information

AMPLATZER PICCOLO™ OCCLUDER

INDICATION OF USE

The Amplatzer Piccolo™ Occluder is a percutaneous, transcatheter occlusion device intended for the nonsurgical closure of a patent ductus arteriosus (PDA).

CONTRAINDICATIONS

Weight < 700 grams at time of the procedure; Age < 3 days at time of procedure; Coarctation of the aorta; Left pulmonary artery stenosis; Cardiac output that is dependent on right to left shunt through the PDA due to pulmonary hypertension; Intracardiac thrombus that may interfere with the implant procedure; Active infection requiring treatment at the time of implant; Patients with a PDA length smaller than 3 mm; Patients with a PDA diameter that is greater than 4 mm at the narrowest portion.

POTENTIAL ADVERSE EVENTS

Potential adverse events that may occur during or after a procedure using this device may include, but are not limited to: Air embolus, Allergic reaction, Anemia, Anesthesia reactions, Apnea, Arrhythmia, Bleeding, Cardiac perforation, Cardiac tamponade, Chest pain, Device embolization, Device erosion, Death, Endocarditis, Fever, Headache/migraine, Hemolysis, Hematoma, Hypertension, Hypotension, Infection, Myocardial infarction, Palpitations, Partial obstruction of aorta, Partial obstruction of pulmonary artery, Pericardial effusion, Pericarditis, Peripheral embolism, Pleural effusion, Pulmonary embolism, Re-intervention for device removal, Respiratory distress, Stroke, Thrombus, Transient ischemic attack, Valvular regurgitation, Vascular access site injury, Vascular occlusion, Vessel perforation.

REFERENCES

1. Schneider DJ, Moore JW. Patent ductus arteriosus. *Circ.* 2006;114(17), 1873-18.
2. Dice DE, and Bhatia J. Patent Ductus Arteriosus: An Overview. *J Pediatr Pharmacol Ther.* 2007;12(3), 138-146.
3. Morray, B. H., Sathanandam, S. K., Forbes, T., et al.(2023, August 16). 3-year follow-up of a prospective, Multicenter Study of the Amplatzer Piccolo™ occluder for Transcatheter patent ductus arteriosus closure in children grams. *Nature News.* 023-01741-1 <https://www.nature.com/articles/s41372-023-01741-1>
4. J.C. Madan, D. Kendrick, J.I. Hagadorn, I.D. Frantz 3rd, Patent ductus arteriosus therapy: impact on neonatal and 18-month outcome. *Pediatrics.* 123 (2) (2009) 674-681.
5. Rodriguez Ogando A, Planelles Asensio I, de Blanca ARS, et al. Surgical ligation versus percutaneous closure of patent ductus arteriosus in very low-weight preterm infants: Which are the real benefits of the percutaneous approach? *Pediatr Cardiol.* 2017.
6. Noori S (2012) Pros and cons of patent ductus arteriosus ligation: hemodynamic changes and other morbidities after patent ductus arteriosus ligation. *Sem Perinatol.* 36(2):139-145.
7. Pamukcu O, Tunçay A, Narin N, et al. Patent ductus arteriosus closure in preterms less than 2kg: Surgery versus transcatheter. *Int J Cardiol.* 2018; 250:110-115.
8. A.F. El-Khuffash, A. Jain, P.J. McNamara, Ligation of the patent ductus arteriosus in preterm infants: understanding the physiology. *J. Pediatr.* 162 (6) (2013) 1100-1106.
9. Chorne N, Leonard C, Piecuch R, Clyman RI. Patent ductus arteriosus and its treatment as risk factors for neonatal and neurodevelopmental morbidity. *Pediatrics.* 2007;119(6):1165-1174. doi:10.1542/peds.2006-3124.
10. Semerova J, et al. Spontaneous Closure of Patent Ductus Arteriosus in Infants </= 1500g. *Pediatrics.* 2017;149 (2).
11. Data on file at Abbott.

CAUTION: This product is intended for use by or under the direction of a physician. Prior to use, reference the Instructions for Use, inside the product carton (when available) or at eifu.abbottvascular.com or at medical.abbott/manuals for more detailed information on Indications, Contraindications, Warnings, Precautions and Adverse Events.

Illustrations are artist's representations only and should not be considered as engineering drawings or photographs.
Photo(s) on file at Abbott.

Abbott

3200 Lakeside Dr., Santa Clara, CA. 95054 USA, Tel: 1.800.227.9902
www.structuralheart.abbott

™ Indicates a trademark of the Abbott group of companies.

‡ Indicates a third party trademark, which is property of its respective owner.

© 2026 Abbott. All Rights Reserved. MAT-2515033 v1.0 | Item approved for U.S. use only.

